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Drawn by EDWARD DUNCAN, Esq.]

THE LIFE-BOAT TO THE RESCUE.

Frontispiece.

HISTORY
OF THE
L I F E - B O A T,
AND ITS WORK.

By RICHARD LEWIS,
OF THE INNER TEMPLE, ESQ., BARRISTER-AT-LAW,
AND SECRETARY OF THE ROYAL NATIONAL LIFE-BOAT INSTITUTION.

WITH ILLUSTRATIONS AND WRECK CHARTS.

SECOND EDITION.



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1874.

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AND CHARING CROSS.

TO ELEANOR,

THE REVERED WIDOW OF

Algernon, Duke of Northumberland, K.G., F.R.S.,

Vice-Admiral,

THE WARM FRIEND OF THE SHIPWRECKED SAILOR

AND

THE LIBERAL SUPPORTER OF THE LIFE-BOAT CAUSE,

THIS WORK,

AS A MARK OF GREAT ESTEEM,

IS DEDICATED.



PREFACE.

THE Author of this volume has been induced to bring briefly into one comprehensive view all that relates to the history of the NATIONAL LIFE-BOAT INSTITUTION, and to its famous Self-righting Life-boat ; so that the general reader may find in it a subject of much interest, which will amply repay his diligent study.

He has obtained for this purpose abundant materials from various sources, and particularly from the pages of the 'Life-boat Journal,' which he, in conjunction with Captain J. R. WARD, R.N., the Institution's Chief Inspector, has conducted during the past twenty-two years.

His object will be fully attained if he shall succeed in placing before the British public and foreign maritime nations a reliable and instructive volume on all that concerns one of the noblest Institutions of this country.

It has been one of his objects to exhibit the method by which the model of the Institution's present Life-boat has been gradually arrived at, and to give by a plain

narration of facts the history of the continued efforts of several generations ; and to indicate the slow and laborious process by which ultimate success has been achieved.

It will be to the intelligent reader a curious study to observe for how long a period (it may be said for nearly a century) clever men of every condition and of wide experience sought in vain for a practical solution of the idea which was nevertheless ever uppermost in their minds—an *insubmergible* and *self-righting* boat. Again, it will be noted that the universal desire and prolonged attempts to solve the problem give important testimony to the urgent need felt for such a vessel ; while the immense success which followed so rapidly on the establishment in London of one central body for the whole coast of these islands—by which the labours of Local Committees, the experience and courage of our seaboard population, and the wealth and hearty co-operation of our seaports and inland towns were alike concentrated on the same objects—renders emphatic testimony to the value of a *National* Institution.

There are two points in connection with the history of the Institution, which, inasmuch as they have operated silently and continuously rather than on any one conspicuous occasion, do not find a prominent place in the

following pages, but which it would be manifestly unjust to pass over in silence—the services of the Fourth Estate, and the personal intrepidity of the Life-boat Inspectors.

With regard to the former, it is difficult to over-estimate the immense assistance rendered to this Institution by the Press during the last twenty-five years. Some most thrilling and instructive articles have appeared in all classes of publications and newspapers on its great work, which threw a sunlight on its renewed labours, and which attracted the attention of the public, although at first slowly, yet surely. The success which the efforts of the Press contributed thus to produce has become so marked that the British LIFE-BOAT INSTITUTION is now the Model on which other Nations have formed, and are still forming, similar Institutions on all the sea-coasts of the World.

Again, a little reflection during the perusal of this work will probably suggest to the minds of most readers a point, to which the Author must nevertheless bear express testimony, namely, that the successive inventions and improvements of the last twenty-five years could not have been put before the world by the Institution, unless they had been tried and proved by its own responsible Officers; and furthermore that such trials (especially in the early years of the Institution's history)

could not be made without great and continued exposure to hardship and peril on their part.

Neither can the Author forbear expressing his obligations to Mr. W. R. SMITH, Chief Clerk of the Institution, for valuable co-operation in arranging many of the details of the book.

14, JOHN STREET, ADELPHI,
London, October, 1874.

PREFACE TO THE SECOND EDITION.

THE appreciation of this book by the public having been manifested by the rapid sale of the First Edition, in a Second the Author has availed himself of the opportunity to make two or three important additions, and to re-arrange other portions of the work; this it is hoped will make the work more instructive and interesting.

December, 1874.

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THE
LIFE-BOAT AND ITS WORK.

. "Peace hath her victories
No less renowned than War."

MILTON.

CHAPTER I.

THE SEA-FARING TRAVELLER—MERCHANT SHIPPING ACTS—INVENTION
OF THE LIFE-BOAT—LUKIN'S "UNIMMERGIBLE" BOAT—WRECK OF
THE 'ADVENTURE'—WOULDHAVE'S "CORK BOAT"—GREATHEAD'S
BOAT AND ITS SERVICES—ACCIDENTS TO BLYTH, STONEHAVEN, AND
TYNE LIFE-BOATS—LINES ON THE REDCAR OLD LIFE-BOAT.

IN this sea-girt isle of ours the warmest sympathies of all are constantly excited on behalf of those who suffer from Shipwreck; and hence in our age it is happily regarded as one of the most important social duties to provide, so far as practicable, for the safety of the sea-faring traveller—to protect his ship from the electric fire, to light up our headlands for his safe return, and to plant Life-boats on the coast for his succour in the hour of distress.

Important as those objects are, both nationally and individually, yet it is only within the memory of living men that any real and practical attempts were made to promote and establish them. The thunderbolt continued to burst on the unprotected mast, to set fire to the ship, and to decimate the crew; the homeward-bound mariner would furl his sail when within sight of his native shore,

and be welcomed to it by coal fires or tinkling bells ; while those who suffered from shipwreck were frequently allowed to perish within sight of land, their countrymen listening to their piercing cries for help, and yet powerless to succour them.

Previous to the year 1854, the NATIONAL LIFE-BOAT INSTITUTION, through the medium of its journal and other sources, had unceasingly expressed its strong convictions of the utter inadequacy of all the then existing means for affording succour to shipwrecked persons around our coasts. Its Committee mourned over this state of things as a national discredit, believing that many hundreds of lives were every year sacrificed at the very threshold of our doors, without any of those strenuous efforts being made for their relief which the urgency of the case demanded, and which our character as a Christian nation loudly called for. They also urged that the shipowner as the employer of the seaman, and the agent for the emigrant and other passengers, should be compelled to provide every available means to prevent accident and to afford them security.

The Government of the day at last became convinced of those facts, and made a successful effort to meet the evil, by means of that great shipping measure—"An Act to Amend and Consolidate the Acts relating to Merchant Shipping." This Act embodies a most comprehensive system of legislation for all the vast and varied interests involved in the immense shipping trade of this country ; and it has been worthily supplemented by the Shipping Amendment Act of 1873, a synopsis of which will be found in the Appendix.

Soon afterwards the Board of Trade, as the representative of the Government, joined cordially with the NATIONAL LIFE-BOAT INSTITUTION in completely

reorganizing the means for Saving Life from Shipwreck on the coasts of the United Kingdom, the Institution undertaking the management of the Life-boat system, and the Board of Trade, in conjunction with the Coast-guard, that of the rocket and mortar apparatus.

We will now proceed to describe what is known as to the origin of the Life-boat.

As is frequently the case with great inventions, it is somewhat difficult to say who was the first designer of the Life-boat; for although Mr. HENRY GREATHEAD, a shrewd boat-builder at South Shields, has very generally been credited with designing and building the first Life-boat, about the year 1789, yet it is certain that Mr. LIONEL LUKIN, a coach-builder in Long Acre, London, had designed and fitted a boat for Saving Life in cases of Shipwreck, which he called an "Unimmovable Boat," some four or five years before GREATHEAD brought forward his plan for a Life-boat.

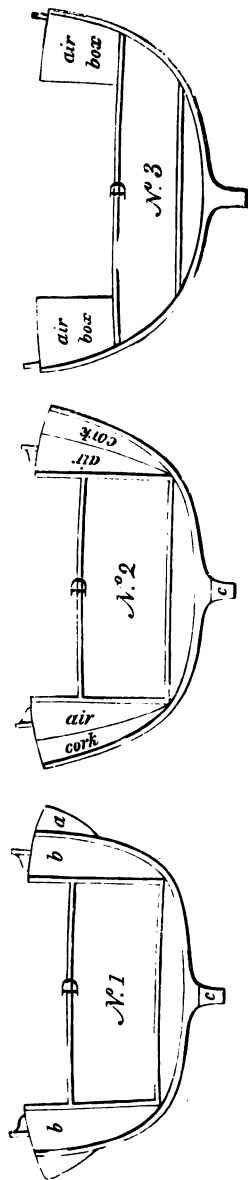
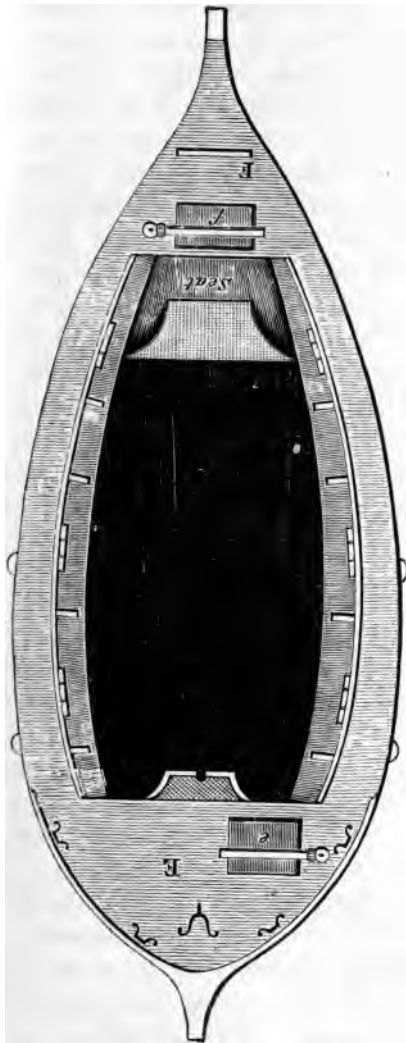
LUKIN was a native of an inland town, Dunmow, in Essex, and not a resident in a seaport; he had nevertheless learned "that by the oversetting and sinking of both sailing and rowing boats many valuable lives had been lost," and was thus induced to turn his attention to the subject in 1784. The then PRINCE OF WALES (GEORGE IV.) who knew LUKIN personally, not only encouraged him to test his invention experimentally, but offered to pay the whole expense of his experiments.

It appears that LUKIN then purchased a Norway yawl, which he fitted up according to his plan, and which he tried in the Thames. To the outside of the upper frame of the yawl he added a projecting gunwale of cork, tapering from nine inches amidships off to very little at the head and stern; and, in addition to this, he formed within the boat, from the gunwale to the floor, a

hollow water-tight enclosure, which gave the buoyancy that was required, the compartment running nearly from stem to stern. By these means "the vessel had such a power of buoyancy in its upper part as to render the specific gravity of the whole vessel and its contents less than the specific gravity of the body of water it would displace in sinking." In order to give it weight or ballast sufficient to keep it upright, the patentee added a false iron keel, and he increased the buoyancy of the boat by two water-tight enclosures, one at its head, and another at its stern. Upon these principles several Life-boats were constructed, and found "to be strictly unimmervible." A patent for the design was taken out by LUKIN on the 2nd of November, 1785, and the specification appeared in the third volume of the 'Repertory of Arts.' The accompanying drawings of LUKIN'S Life-boat are facsimiles of those given in the book, descriptive of his boat, which was published by him in 1790.

The Rev. Dr. SHAIRP, of Bamborough, hearing of the invention, and having charge of a charity for saving life and property at sea, sent a coble to Mr. LUKIN to be made "unimmervible." This was done, and satisfactory accounts were afterwards received of the altered boat, which was reported to have saved several lives in the course of the first year of its use.

Although the PRINCE OF WALES had been the liberal patron of Mr. LUKIN, yet even his influence was not sufficient to bring the Life-boat into notice; and Mr. LUKIN appealed in vain for encouragement to the First Lord of the Admiralty, to the Deputy Master of the Trinity House, and to various Admirals and Captains of the Navy. With the exception of the Bamborough coble, not a single Life-boat on this plan was placed at any of the dangerous parts of our coast.



LUKIN'S "UNIMMERGIBLE" BOAT. INVENTED 1785.
Scale 4 In to 1 Foot.

To face p. 4.

LUKIN retired from business in 1824, and ultimately went to reside at Hythe, in Kent, where he died in 1834. At his request, the following inscription was engraved on the reverse side of his tombstone, and is still to be seen in Hythe churchyard :

“ This LIONEL LUKIN

Was the first who built a Life-boat, and was the original Inventor of that principle of safety, by which many lives and much property have been preserved from Shipwreck; and he obtained for it the King's patent in the year 1785.”

As we have said, notwithstanding LUKIN'S ceaseless efforts to bring his plan of Life-boat into general use, hardly any efforts had been effectually made to aid the shipwrecked mariner until the year 1789, when the *Adventure*, of Newcastle, was wrecked at the mouth of the Tyne. While this vessel lay stranded on the Herd Sand at the entrance of the river, in the midst of tremendous breakers, her crew “dropped off one by one from her rigging,” only three hundred yards from the shore, and in the presence of thousands of spectators, not one of whom could be induced to venture to her assistance in any boat or coble of the ordinary construction. Under the strong feelings excited by this disaster, a Committee was appointed, at a meeting of the inhabitants of South Shields, to offer premiums for the best models of a Life-boat “calculated to brave the dangers of the sea, particularly of broken water.”

From the many plans which were offered to the Committee, two were selected — one by Mr. WILLIAM WOULDHAVE, a painter, and the other by Mr. HENRY GREATHEAD.

The idea of WOULDHAVE'S form of boat was suggested to him, it is said, by the following circumstance :—Having

been asked to assist a woman to put a "skeel" of water on her head, Mr. WOULDHAVE noticed that she had a piece of a broken wooden dish lying in the water, which floated with the points upwards, and turning it over several times, he found that it always righted itself. This observation suggested to him the construction of his model, but he does not seem to have done more than construct a boat which was long known at Shields by the name of *Wouldhave's Cork Boat*.

As regards the boat suggested by MR. GREATHEAD, the great novelty in it was the improvement of making the keel curved instead of straight; and the Shields Committee awarded to him the premium, and employed him to build a Life-boat as he had proposed, its cost being defrayed by public subscriptions. It was built at South Shields, and was launched there in January, 1790.

In a letter addressed to *The Monthly Magazine*, in July, 1802, by "A Son of the Tyne," it is stated that the boat was not altogether on GREATHEAD's plan, but that the Committee adopted his form of keel, and took the hint from WOULDHAVE'S model of making the boat more buoyant by means of cork. The boat was given to GREATHEAD to build, because he appeared to take an interest in the work, and was the only one in the boat-building trade who had taken notice of the advertisement.

The dimensions of the boat were as follows: length extreme, 30 ft.; length of keel, 20 ft.; breadth of beam, 10 ft.; depth of waist outside, $3\frac{1}{4}$ ft.; depth inside, to deck, $2\frac{1}{2}$ ft.; stem and stern, alike, $5\frac{3}{4}$ ft. high; sheer of gunwale, 30 in. She was fitted to pull ten oars double-banked with iron thole-pins and grummets, and had a very raking stem and stern-post, $10\frac{1}{4}$ in. to 1 ft. The depth of main keel was 4 in., with great camber or

curvature, and three sliding keels. A cork lining, 12 in. thick, ran fore-and-aft on each side, and reached from the deck to the thwarts; and a cork fender outside, 16 in. deep, 4 in. wide, and 21 ft. long, not reaching to the stem or stern within $4\frac{1}{2}$ ft., nearly 7 cwt. of cork being fitted to the boat altogether. A deck or platform was laid at 11 in. above the bottom of the keel, and there were five thwarts, 36 in. apart from centre to centre, at 16 in. above the flat, and 11 in. below the gunwale. The form of the boat was like that of a steamer's paddle-box boat, with stem and stern alike. She had no means of freeing herself of water, or of self-righting, in the event of being upset.

She was at first moved along the shore upon four low wheels; but another plan was afterwards adopted. Two wheels of 12 ft. diameter, with a moveable arched axis, and a pole affixed thereto for a lever, were constructed, and the boat was suspended near her centre between the wheels under the arched axis, towards each extremity of which was an iron pin. When the pole was elevated perpendicularly, the upper part of the axis became depressed, and a pair of rope slings, which went round the boat, being fixed to the iron pins, she was raised with the greatest facility by means of the pole, which was then fastened down to the stern of the boat.

It appears, therefore, that GREATHEAD'S boat differed from LUKIN'S in the shape of the keel, and in the substitution of cork for the side air-chambers. Indeed, in the former's boat the peculiar nature of the curvature of the keel is reckoned the basis of its excellence; and it is owing to this very important peculiarity, which is the undoubted plan of Mr. GREATHEAD, that he has been popularly regarded as the inventor of the Life-boat, and entitled to a national reward.

Mr. WOULDHAVE died at South Shields, in 1821. His Life-boat design is commemorated in the parish church of St. Hilda, at that place, on a tombstone, which is headed by a model of a Life-boat, and bears the following quaint inscription, a copy of which has been supplied to the Author by the Rev. GEORGE E. SHARLAND, of South Shields :

"Sacred to the Memory of
WILLIAM WOULDHAVE
Who died September 28th, 1821,
Aged 70 years,
Clerk of this Church
and Inventor of that invaluable blessing to mankind
The Life-boat.

"Heaven genius scientifick gave,
Surpassing vulgar boast, yet he from soil
So rich no golden harvest reap'd—no wreath
Of laurel glean'd nor but the sailor's heart
Nor that ingrate a Palm unfading this,
Till Shipwrecks cease, or Life-boats cease to save."

A model of his Life-boat is also suspended to the chain of the chandelier in St. Hilda's church.

Although the Life-boat constructed by Mr. GREATHEAD was built in 1789, yet it performed no useful service till 1791, when it saved the crew of a Sunderland brig which was stranded at the entrance of the Tyne. On the 1st of January it saved the crews of the ship *Parthenius* of Newcastle, and the *Peggy*. In 1796 it did similar service to the crew of a Scottish sloop, the *Countess of Errol* ; and in 1797 to the *Fruit of Friends*, from Leith ; and the *Planter*, from London, in which fifteen lives were saved. Notwithstanding these numerous acts of humanity, no other Life-boat was made till 1798, when the then Duke of NORTHUMBERLAND ordered one to be built at his own expense by GREATHEAD, and

endowed it with an annuity for its preservation. It was stationed at North Shields ; and soon after it was finished it saved seven men from the sloop *Edinburgh* of Kincardine, which was wrecked on the Herd Sands. It saved also the crew of the brig *Clio* ; and in 1799 the crew of the ship *Quintilian* from St. Petersburg. The Duke also ordered a Life-boat for Oporto in 1800 ; and in the same year Mr. CATHCART DEMPSTER ordered one for St. Andrew's, where, on the 10th of January, 1803, it was the means of saving the crew, twelve in number, of the *Meanwell* of Scarborough. On this occasion the storm was so violent, that the fishermen could not be persuaded to go afloat in the boat, till Mr. DEMPSTER, one of the magistrates, Major HORSBURGH, and Mr. DAVID STEWART, a shipmaster, nobly volunteered their services. Owing to these and other proofs of its practical value, Mr. GREATHEAD received many orders to build Life-boats, and before the end of 1803 he had built no fewer than *thirty-one—five* for Scotland, *eight* for foreign countries, and *eighteen* for England.

In the beginning of 1802, when two hundred lives had been saved at the entrance of the Tyne alone, GREATHEAD applied to Parliament for a national reward ; and, after a Committee of the House of Commons had taken evidence, and reported on the value of the invention, the sum of £1200 was voted to him. The Trinity House added £105, Lloyd's the same sum, the Society of Arts its Gold Medal and 50 guineas, and the EMPEROR OF RUSSIA a diamond ring.

After such gratifying testimony to the value of Life-boats had been given, it might reasonably have been anticipated that their number would be increased rapidly on the coast. Such, however, was not the case. Neither can we find that any authentic records were kept of the

boats, their services, and the accidents that may have occurred to them.

We find, however, a notice of the following lamentable accident to one of the boats, with a fearful loss of life. It appears that at Hartley, on the coast of Northumberland, five miles north of Tynemouth, in the year 1810, one of GREATHEAD'S Life-boats, carried overland from Blyth, rescued the crews of several fishing cobles that were prevented landing by a high sea tumbling in suddenly upon the coast, unaccompanied by wind. On returning towards the shore, the boat incautiously got too near the South Bush Rock, when a heavy sea broke on board, and split her in halves; the result was, that the whole of those on board, thirty-four in number, were unhappily drowned.

In contrast to the sad result of this accident, it may here be mentioned that in February 1874, the Stonehaven self-righting Life-boat met with an unfortunate accident, when four of her crew were lost. On that occasion she was so much damaged by being violently dashed by the heavy seas for hours against the large stones and masses of rock at the back of Aberdeen Pier, after she was abandoned, that it was found impracticable to repair her. Still the way in which the boat passed through this trying ordeal, which would have destroyed any ordinary boat in a very short space of time, demonstrated in a most striking manner the great strength of the diagonal principle of boat-building, carried out in the self-righting Life-boats of the Institution, and the ample security that is, in that respect, given to the brave crews who work those boats. Even in its injured condition the Life-boat had not lost its powers of flotation.

The original Life-boat built by GREATHEAD also terminated its career about the year 1821, when it struck

upon the rocks while proceeding out to a stranded ship at the mouth of the Tyne, and was destroyed ; but no life was lost.

Even now several of GREATHEAD'S Life-boats, which are exclusively rowing-boats, are to be found on the coast ; the oldest one is that in the possession of the boatmen at Redcar, it having been built in 1802. On seeing this fine old Life-boat, which has saved some scores of lives, Viscount STRATFORD DE REDCLIFFE composed some years ago the following verses, which were afterwards set to music by CLARIBEL, and published by Messrs. BOOSEY & Co. :

THE LIFE-BOAT.

The Life-boat ! Oh, the Life-boat !
We all have known so long,
A refuge for the feeble,
The glory of the strong.
Twice thirty years have vanished,
Since first upon the wave,
She housed the drowning mariner,
And snatched him from the grave.

Let others deem her crazy,
Nor longer fit to breast
The surge that madly driven
Bears down with foaming crest.
But we who oft have mann'd her,
When death was on the prow,
We cannot bear to leave her,
Nor will we leave her now.

The voices of the rescued,
Their numbers may be read,
The tears of speechless feeling
Our wives and children shed ;
The memories of mercy
In man's extremest need,
All, for the dear old Life-boat
Uniting seem to plead.

CHAPTER II.

SIR WILLIAM HILLARY'S APPEAL—MR. THOMAS WILSON'S HEARTY CO-OPERATION—FORMATION OF THE NATIONAL SHIPWRECK INSTITUTION—ISLE OF MAN LIFE-BOATS—PALMER'S LIFE-BOAT—PROGRESS OF THE SHIPWRECK INSTITUTION.

PUBLIC interest in the important and national subject of the Preservation of Life from Shipwreck on our coast gradually languished until the year 1823, when, in consequence of the frequency of the calamitous shipwrecks, with great loss of life, which took place every year on our coasts, and the inadequate means provided for the rescue of the crews, the late Sir WILLIAM HILLARY, Bart., published a powerful appeal to the nation, setting forth in forcible language the whole subject, and boldly asking whether Englishmen would quietly look on and see hundreds of their fellow-creatures annually perish on the shores of the United Kingdom, when effectual means of rescue, if supplied and properly used, were within reach.

Sir WILLIAM HILLARY, had often witnessed, while residing in the Isle of Man, some of the harrowing scenes attending the loss of vessels and their crews. These sad scenes, working upon a generous and humane disposition, led him to turn his thoughts towards devising a remedy for an evil of such fearful magnitude. It is probable that the wrecks of the Government cutter, the *Vigilant*, and some other vessels in Douglas Bay, in which Sir

WILLIAM HILLARY personally assisted in saving life, and the total wreck of H. M. brig *Racehorse*, on Langaness Point, in the Isle of Man, all of which occurred in the year 1822, were the more immediate causes which roused his energetic mind to make his vigorous appeal to the public.

That appeal was warmly responded to, for it struck a sympathetic chord in the hearts of too many to permit the subject being any longer overlooked. Still at first but little was done, until the latter end of 1823, when Sir WILLIAM became acquainted with Mr. THOMAS WILSON, who was then one of the representatives in Parliament for the City of London, and who cordially threw himself into the cause, feeling that there was a sort of claim on those engaged in foreign commerce, to assist in any plan for the preservation of the lives of those by whom that commerce was carried on. Accordingly, we find Mr. WILSON immediately taking steps to hold a preliminary meeting at the London Tavern, on the 12th of February, 1824, when, having been called to the chair, the following resolution was unanimously carried :—

“That this meeting, taking into consideration the frequent loss of human life by Shipwreck, and believing that by the preconcerted exertions of practical men, and the adoption of practicable means, such calamities might often be averted, are of opinion that a National Institution should be formed (to be supported by voluntary donations and subscriptions), for the Preservation of Life in cases of Shipwreck on the coasts of the United Kingdom ; for affording such immediate assistance to the persons rescued as their necessities may require ; for conferring rewards on those who preserve their fellow-creatures from destruction ; and for granting relief to

the destitute families of any who may unfortunately perish in their attempts to save the lives of others."

It was then arranged that a general meeting, at the London Tavern, should be convened for the 4th of March following, with the view to the formation of a National Shipwreck Institution. In the meantime, Mr. WILSON was successful in obtaining the consent of His Majesty King GEORGE IV. to become the patron of the institution; of their Royal Highnesses the Dukes of YORK, CLARENCE, SUSSEX, CAMBRIDGE, and Prince LEOPOLD to be its Vice-Patrons; and the Earl of LIVERPOOL its President. The two Archbishops, the Bishops of LONDON, DURHAM, BATH and WELLS, and BRISTOL, Lord JOHN RUSSELL, Mr. GEORGE HIBBERT, Mr. GEORGE LYALL, Mr. JONATHAN CHAPMAN, with many others of the nobility, gentry, and merchants in the kingdom, also gave their names in support of the Institution, as Vice-Presidents and Members of Committee. On the 4th of March a general meeting, most influentially and numerously attended, was accordingly held at the London Tavern, at which the Archbishop of CANTERBURY (Dr. MANNERS SUTTON) presided.

The result of this meeting in the City of London was that the "ROYAL NATIONAL INSTITUTION FOR THE PRESERVATION OF LIFE FROM SHIPWRECK" was founded, and established on a permanent basis; and it must have been a proud day for Sir WILLIAM HILLARY, Mr. WILSON, and their coadjutors, to find the cause they had long worked for in private, publicly and eloquently advocated in the metropolis of the kingdom by various influential men, including among them the ever-to-be-revered name of WILLIAM WILBERFORCE.

On his return to the Isle of Man, Sir WILLIAM HILLARY, supported by the Lieut.-Governor and other

officers of the island, established in 1826 a District Life-boat Association, and the first Life-boat, built by Mr. PLENTY, of Newbury, was stationed in Douglas Bay, another at Castletown in 1827, a third at Peel in 1828, and a fourth at Ramsay in 1829. Between the years 1821 and 1846 no fewer than 144 wrecks had taken place on the island, and 172 lives were lost, while the destruction of property was estimated at a quarter of a million. In 1825, when the *City of Glasgow* steamer was stranded in Douglas Bay, Sir WILLIAM HILLARY assisted in saving the lives of sixty-two persons; and in the same year eleven men from the brig *Leopard*, and nine from the sloop *Fancy*, which became a total wreck. In 1827-32, Sir WILLIAM, accompanied on one occasion by his son, saved many other lives; but his greatest success was on the 20th of November, 1830, when he saved in the Life-boat twenty-two men, the whole of the crew of the mail steamer *St. George*, which became a total wreck on St. Mary's Rock. On this occasion he was washed overboard among the wreck, with three other persons, and was saved with great difficulty, having had six of his ribs fractured.

On its formation, the ROYAL NATIONAL INSTITUTION FOR THE PRESERVATION OF LIFE FROM SHIP-WRECK was nobly supported by the liberality of the public, its receipts during the first year of its existence having reached the sum of £9826 6s. 6d.; and the Committee, in their first Report, had the satisfaction to state that they had caused twelve Life-boats to be built for different stations on the coast, besides which thirty-nine Life-boats had been stationed on our shores by benevolent individuals, and Associations, not connected with the Institution. It should be added that, in its early days, the Institution assisted local bodies to place Life-boats on the coast; and some of them

remained nominally in connection with it, but it did not undertake any superintendence or control over them. The Institution had also placed the mortar apparatus of Captain MANBY at sixteen different stations.

It may here be mentioned that, many years afterwards, it abandoned, from want of adequate support, two important functions, namely, supplying the coast with the mortar and rocket apparatus, and providing for the wants of sailors who had been saved from Shipwreck.

The first of these duties is now, as previously mentioned, most efficiently discharged by the Board of Trade, in conjunction with the Coastguard; and the second is admirably and promptly carried out by the Shipwrecked Fishermen and Mariners' Society, with the help of its numerous agents on the coast.

In the year 1826 the late GEORGE PALMER, Esq., of Nazing Park, Essex, M.P. for the Southern Division of that County, first became connected with the Institution, to the interests of which he unceasingly devoted a large portion of his valuable time to within a few weeks of his lamented death in May 1853. In 1828 his plan of fitting Life-boats was first used by the Institution, and continued so until 1852, when it was superseded by the adoption of the self-righting principle.

The services rendered by PALMER'S boats to shipwrecked persons and vessels in distress were very great, some hundreds of the former having been saved through their instrumentality from inevitable death, and many of the latter from destruction.

In the second year of the history of the Institution, 1825-26, the receipts amounted to £2392 7s. 5d., in addition to which there was a legacy of £1000 from the late JOHN HENRY HECKER, Esq., of Finsbury, making a total of £3392 7s. 5d.

In their second Report the Committee were enabled to state that they had placed additional Life-boats, and sets of the mortar apparatus on the coast ; and had established several Branch Associations. Up to that period the Society had contributed to the saving of 342 lives from Shipwreck, either by its own life-saving apparatus or by other means for which it had granted rewards.

From the next nine Reports of the Institution we find that its annual receipts, during the fifteen years they embrace, never reached the amount received even in the second year after its establishment. The Institution nevertheless pursued its work on the coast as far as its limited means permitted.



CHAPTER III.

ACCIDENTS TO THE BLYTH, ROBIN HOOD'S BAY, AND SOUTH SHIELDS
LIFE-BOATS—CONDITION OF THE LIFE-BOAT SERVICE IN 1849—
RESULTS OF THE WORK OF THE INSTITUTION IN TWENTY-FIVE
YEARS.

BETWEEN 1841 and 1850 no appeal was made to the public on behalf of the NATIONAL SHIP-WRECK INSTITUTION, and it is therefore difficult to furnish any detailed account of its operations; but the records of three accidents to Life-boats, with a terrible loss of life, are succinctly given.

The first was at Blyth, Northumberland, in October, 1841. The Life-boat was pulling off against a strong wind, when a heavy sea struck her, causing her to run stern under, and to half fill with water. From want of delivering-valves the boat could not free herself; she became unmanageable, and fell off the wind, when a second sea struck her, and she capsized. On this occasion ten men were drowned.

Again, at Robin Hood's Bay, on the coast of Yorkshire, seven miles south of Whitby, in February, 1843, the Life-boat went off to the assistance of a stranded vessel, the *Ann*, of London, during a fresh northerly gale. The Life-boat had got alongside the wreck, and was taking in the crew, when, it is supposed, four or five men jumped into her at once on one side, when, a heavy

sea striking her at the same time, she capsized. Many of the crew got on her bottom, while three remained underneath her, and in this state she drifted towards the shore on the opposite side of the bay. On seeing the accident from the shore, five gallant fellows launched a coble (fitted with air-cases as a Life-boat), and tried to pull off to the rescue; but she had hardly encountered two seas, when she was turned *end over end*; two of her crew were drowned, and she drifted ashore bottom up. On this occasion Lieut. LINGARD, R.N., of the Coastguard service, and eleven men, lost their lives, three men came on shore safely under the Life-boat, and some on her bottom; the other men were washed off.

The following deplorable accident also happened to the South Shields Life-boat on the 4th of December, 1849, when the boat, manned by twenty-four pilots, went out to the aid of the *Betsy*, of Littlehampton, stranded on the Herd Sand. There was a heavy sea on from the eastward at the time, but little wind, and a strong ebb-tide. The boat had reached the wreck, and was lying alongside, with her head to the eastward, having a rope fast to the quarter, but the headfast not properly secured, and the shipwrecked men were about to descend into the Life-boat, when a heavy sea, recoiling from the bows of the vessel, lifted the bow of the boat, and turned her up on end, throwing the whole of the crew and the water into the stern sheets. The headfast not holding, the boat drove in this position, astern of the vessel, and, before she could recover herself, a second sea completed the work of destruction by throwing her completely over, and she ultimately drifted on shore bottom up. On this occasion twenty out of twenty-four (or double her proper crew) were drowned under the boat. On seeing the accident two other Life-boats immediately dashed off

from North and South Shields, saved four of the men, and rescued the crew of the *Betsy*.

The boat to which this last sad disaster happened was 34 feet long, over all, and had nearly 11 feet breadth of beam. It was of the shape of a steamer's paddle-box boat, or nearly of the original GREATHEAD form, and had 30 inches sheer of gunwale, and 11 inches curvature of keel. It was fitted with an air-case under the flat or deck, 15 inches in height, which contained 224 cubic feet of air, with a well for water-ballast in the middle, holding 30 cubic feet, or 17 cwt. when full. The surface of the flat or deck was 20 inches above the underside of the keel; and the boat was fitted with flat top air-cases around the sides. The boat had an open well when the accident happened, and when thrown on end the water-ballast would run out into her stern.

It is but justice to add, and it is a fact highly honourable to the port, that the Life-boats at Shields had been in constant use since GREATHEAD first launched his boat there on the 30th of January, 1790, and that this was the first case where loss of life had happened.

At this time (1849) the Life-boat work was in a very depressed state, the public having apparently lost all interest in it. Some of the Local Life-boat Associations had ceased to exist, and many of the Life-boats had been allowed to fall into decay; and in places where shipwrecks were very rare, the boats had remained many months out of the water; so that when wrecks did occur the boatmen had no confidence in them, and preferred going off in their own craft to a wreck, which was often attended with most lamentable consequences. Funds, too, were often wanting to pay these brave men for their services, and the whole system was in such a low state, that among all the Life-boats in the United Kingdom

there were perhaps not a dozen really efficient boats. The NATIONAL SHIPWRECK INSTITUTION, with diminished funds, had been exciting less interest from year to year, while the great increase of our commerce was constantly occasioning an increased number of casualties at sea.

It may be interesting to know that at about this period the following nineteen Life-boats were more or less in connection with the Institution :—

ENGLAND.		SCOTLAND.
Boulmer.	Moelfre.	Nil.
Bridlington.	North Sunderland.	
Boston Deep.	Penmon.	IRELAND.
Bideford (three boats).	Penrhyn.	Derrynane.
Cemlyn.	Rhoscolyn.	Kilmore.
Holyhead.	Rye.	Rosslare.
Llanddwyn.	Scilly Islands.	Total, 19 boats.

Its income in 1849-50 was £354 17s. 6d. in yearly subscriptions, donations, and dividends arising from a small amount of stock in the 3 Per Cent. Reduced Annuities.

From the time of the formation of the Institution, in 1824, it had awarded 74 gold medallions, and 429 silver medals, to officers, boatmen, and other persons, as honorary distinctions for their meritorious exertions in saving life from shipwreck ; and had voted pecuniary rewards to the amount of £6976 for saving altogether 6716 lives ; in addition to having expended £5500 on Life-boats, and other appliances, for saving life from shipwrecks on our coasts.



CHAPTER IV.

RE-ORGANISATION OF THE SOCIETY IN 1850 — SERVICES OF THE PRESIDENT, THE COMMITTEE, AND OFFICERS — THE DUKE OF NORTHUMBERLAND'S PRIZE FOR THE BEST LIFE-BOAT — NOTICE TO BOAT-BUILDERS — LIFE-BOAT DESIGNS RECEIVED — THEIR EXAMINATION BY THE PRIZE LIFE-BOAT COMMITTEE — PRIZE AWARDED TO MR. JAMES BEECHING — GREAT EXHIBITION OF 1851 — WRECK CHARTS OF 1850 AND 1872.

THE Committee were not insensible to the deficiencies in the means of saving life in 1850, but the support they received was not sufficient to enable them to overcome their difficulties.

The lamentable accident to the Shields Life-boat, had, however, the effect of calling public attention to the Life-boat question ; and in the sequel important results to the cause of humanity flowed from an event which at the moment was only thought of as a great calamity. For the mind of the nation having been once directed to the existing state of things, men could no longer view with apathy the increasing loss of life from Shipwreck, the many and fatal accidents to inefficient Life-boats, and the entire absence of any along extensive lines of coast in these islands.

One of the first effects was, that following in the steps of those great men who, since the days of Queen ELIZABETH, have been the pioneers of progress in humanity as well as in arts, science, and literature, and have thus made this country illustrious by its religious and civilising

influences, a noble band of men formed themselves into a Committee to make renewed efforts on behalf of the shipwrecked sailor.

The late PRINCE CONSORT, with his highly cultivated mind and intuitive appreciation of all that was good and great, accepted the office of Vice-Patron of the Institution, in conjunction with the late KING OF THE BELGIANS. Two or three years afterwards, Her Majesty THE QUEEN, who had been its Patron since her accession to the Throne, contributed £100 to its funds; and subsequently became an annual subscriber of £50 to the Society. Again, in 1860, HER MAJESTY was pleased to grant a Charter of Incorporation to the Institution. (Appendix, p. 183.) To this day THE QUEEN continues to take a warm interest in its welfare, which feeling is fully shared in by their Royal Highnesses the PRINCE OF WALES and the DUKE OF EDINBURGH, who have each most efficiently presided at its Annual Meetings.

ALGERNON, Duke of NORTHUMBERLAND, the "good Sailor Duke," became its President in 1851, and threw his whole heart into the work, which ultimately made his name famous throughout the world. On his decease, in 1866, his office was filled by the present Duke of NORTHUMBERLAND, who takes great interest in the welfare of the Institution, and who, in conjunction with his son, Earl PERCY, M.P., continues to render it valuable and cordial co-operation.

Mr. THOMAS WILSON, formerly M.P. for the City of London, who had already been its Chairman for twenty-six years, and was then over eighty years old, with an unclouded intellect, and a zeal that knew no rest, became absorbed afresh in the work.

He was seconded by Mr. GEORGE PALMER, the Deputy Chairman of the Society. He was about the same age

as Mr. WILSON, and by his intelligence and foresight aided in every way in his power to further the great and national work of the Institution ; and shortly before his decease, in 1853, the Committee had the honour to present to him its Gold Medal in acknowledgment of his long and most valuable services.

In 1853 the Institution was most fortunate in enlisting the services of Mr. THOMAS CHAPMAN, F.R.S., Chairman of Lloyd's Register, as successor to Mr. GEORGE PALMER, as its Deputy Chairman. Mr. CHAPMAN has ever since brought to bear on the affairs of the Life-boat Institution an amount of talent, activity, and experience which have rarely been witnessed in a similar capacity, and which have been productive of the happiest and most successful results to the cause of humanity.

In 1854 Mr. THOMAS BARING, M.P., F.R.S., at Mr. CHAPMAN'S request, became Chairman of the Committee of Management, in succession to the late Mr. Alderman THOMPSON, M.P., who had been appointed Chairman on the death of his friend Mr. WILSON. Mr. BARING continued to hold that office to the close of his life (1873), when Mr. CHAPMAN consented to become Chairman of the Committee ; and Mr. GEORGE LYALL, late Governor of the Bank of England, became the Deputy Chairman.

Sir EDWARD PERROTT, Bart., joined the Committee of the Institution in the early part of 1850. As Chairman of its Sub-Committees, he has during the past twenty-four years rarely been absent when its sub and general committee meetings are held ; and thus, and in many other respects, he has powerfully and unceasingly aided in building up the noble superstructure of Life-boat work which we now witness and admire on our coast. In grateful recognition of these services the

Committee of Management, in 1872, had the satisfaction to present to Sir EDWARD the Gold Medal of the Institution.

Captain WASHINGTON, R.N., F.R.S., became a member of the Committee in 1851; he brought his great experience and ability to bear for many years on the Life-boat cause, and published a pamphlet on Naval Architecture and Life-boats.

At this period Captain GEORGE DAVIES, R.N., rendered hearty co-operation to the Life-boat cause by visiting, on behalf of the Institution different Life-boat stations in Northumberland and elsewhere. He had previously greatly distinguished himself in Saving Life from Shipwreck, and had been presented by the Society with its Gold and Silver Medals and Clasps, in acknowledgment of his many acts of bravery.

The Marquis of CHOLMONDELEY, Admiral Sir WILLIAM H. HALL, K.C.B., Mr. W. H. HARTON, Admiral RYDER, The Right Hon. STEPHEN CAVE, M.P., Captain DE STE. CROIX, Colonel FITZROY CLAYTON, Sir WILLIAM CLAYTON, Bart., Admiral MCHARDY, Colonel PALMER, and other gentlemen have also rendered valuable services for a long period at the Committees of the Institution.

In 1850 the Author was appointed, at a comparatively early age for so responsible an office, Secretary of the Institution; and from that period to the present time he has had the happiness to enjoy the confidence of its Committee of Management, Officers, and Staff, its numerous Branch Committees, and the support of the public in general.

In 1852 Captain J. R. WARD, R.N., was appointed its Inspector of Life-boats. His appointment and services have been of great benefit to the Life-boat cause. Pos-

sessing a clear mind, considerable scientific knowledge, and a zeal tempered by great discretion, he has devoted a large portion of his life to mature the means of Saving Life from Shipwreck, and to promote the best interests of the Institution.

In 1862, Captain DAVID ROBERTSON, R.N., was appointed the Institution's Assistant Inspector of Life-boats, and he has ever since discharged the duties of his responsible office to the great satisfaction of the Committee of Management and the Local Committees.

In consequence of the great increase in the number of the Life-boats of the Institution, it was found absolutely necessary to appoint another Inspector at the beginning of the present year, and Captain C. GRAY JONES, R.N., was accordingly selected for that important post; and he has already given promise to emulate in every respect his two Senior Officers, having been presented with the Society's Silver Medal in acknowledgment of his intrepidity in the Dundrum Bay Life-boat in February last.

On the reorganisation of the Society, in 1850, the Committee undertook the immediate and more decided superintendence of the Life-boat work on our coasts, with the aid of the Local Committees at the several Branches.

It was arranged that the boats should be periodically inspected by their own officers; while a fixed scale of payments to the coxswains and crews of the Life-boats on all occasions of their going afloat in them, whether on service or quarterly exercise, was settled, in addition to an annual salary to the coxswains. Again, a system of quarterly and other Reports from the Branches to the parent Institution was initiated.

Beyond all this, however, it was evident that the first

and most obvious step to take was to introduce an improved plan of Life-boat, both as regarded external form and internal fittings.

The Author well remembers the deep interest which the late Duke of NORTHUMBERLAND took in the subject, and which resulted in His Grace's offering a prize of one hundred guineas for the best model of a Life-boat, together with a further like sum to defray the cost of building a boat on the model to be chosen—and a hand-bill, of which the following is a copy, was extensively circulated on the coasts of the United Kingdom, and in many foreign countries, calling attention to his offer:—

“TO BOATBUILDERS, SHIPWRIGHTS, &C.

“Great loss of life having occurred from time to time on the coast of Northumberland, and elsewhere, by the upsetting of Life-boats, and especially in the case of the Shields Life-boat in December last, whereby twenty pilots were drowned, notice is hereby given, that, with a view to the improvement of boats to be employed for such purposes, His Grace the Duke of NORTHUMBERLAND offers the sum of one hundred guineas for the best model of a Life-boat, which may be sent to the Surveyor's Department, Admiralty, Somerset House, London, by the 1st day of February, 1851.

“The Surveyor of the Navy has consented to act as final referee in adjudging the reward, and has named the following Committee to examine the models, and conduct the requisite experiments:—Captain WASHINGTON, R.N., F.R.S., Inspector of Harbours; JOHN FINCHAM, Esq., Master Shipwright at Portsmouth Dockyard; ISAAC WATTS, Esq., Assistant Surveyor, Admiralty, Somerset House; Commander JERNINGHAM, R.N., of H.M.S. *Ex-*

cellent, late Inspecting Commander of Coastguard at Great Yarmouth, and JAMES PEAKE, Esq., Assistant Master Shipwright, Woolwich Dockyard.

"And His Grace offers the further sum of one hundred guineas for building a Life-boat according to the model which may be approved of.

"It is considered that the chief objections to the present Life-boats, generally speaking, are :—

"1. That they do not right themselves in the event of being upset.

"2. That they are too heavy to be readily launched, or transported along the coast, in case of need.

"3. That they do not free themselves of water fast enough.

"4. That they are very expensive.

"It is recommended that the models be made on the scale of one inch to a foot, and that they be accompanied by plans, specifications, and estimates. The models will not be detained beyond the 1st of April, in case the respective builders should wish to send them to the Great Industrial Exhibition of 1851.

"London, October, 1850."

That offer was freely responded to by boat-builders and others from all parts of the United Kingdom, and from France, Holland, Germany, and the United States of America, and the large number of 280 models and plans were sent in.

On examining the papers, it was found that there was a want of exact information on many points, and accordingly a circular, naming the several particulars required, was sent to each contributor. The answers to these circulars, with the original descriptions, specifications,

and plans of the several models, made five folio manuscript volumes.

The several models and plans were deposited in rooms at Somerset House, lent by the Admiralty, and the Committee appointed to decide on their relative merits devoted themselves unceasingly for six months to the examination of them.

A general review of the models soon pointed out that they might be advantageously grouped according to their characteristic features. Thus there were several models in the shape of pontoons ; catamarans, or rafts, formed a second group ; a third group may be described as having for its type a troop boat or steamer's paddle-box boat ; a fourth as partaking chiefly of the north country coble ; and lastly, a group composed of the ordinary boat in every-day use, slightly modified according to the nature of the coast they were intended for.

After examining the models separately, so as to ascertain their form for pulling or sailing, their dimensions, capacity for holding water, area of delivering valves, weight, nature and amount of extra buoyancy, and trying experiments in the Thames on their relative stability, power of self-righting, and readiness in freeing themselves, having also prepared a description of several, and added a few remarks—each model was brought forward in turn before the General Committee, the description and remarks read over, discussed, corrected, and agreed upon.

The difficulty then arose, where so many boats were nearly alike, of deciding on the relative merits of each. In order to ensure that no good quality should be overlooked, the Committee agreed upon those points which they considered the essential qualities of a Life-boat, and

their order of precedence. A certain numeral was then given to each of those qualities, according to its importance, so that the whole should make up 100. It may be satisfactory to know what, in the opinion of the Committee, were those qualities, and the degree of importance they attached to them. They were as follows :—

Qualities as a rowing boat in all weather	20
Qualities as a sailing boat	18
Qualities as a sea boat ; as stability, safety, buoyancy forward for launching through a surf, &c.	10
Small internal capacity for water up to the level of the thwarts	9
Means of freeing boat of water readily	8
Extra buoyancy ; its nature, amount, distribution, and mode of application	7
Power of self-righting	6
Suitableness for beaching	4
Room for, and power of, carrying passengers	3
Moderate weight for transport along shore	3
Protection from injury to the bottom	3
Ballast, as iron 1, water 2, cork 3	3
Access to stem or stern	3
Timber heads, for securing warps to	2
Fenders, life-lines, &c.	1

 100

It will be seen by the above formula that the Committee considered it an essential requisite in a Life-boat that she should be a good rowing boat, and able to get off the beach in any weather in which a boat can live at sea, as, in the absence of such a power, other good qualities are of no avail. To this then was awarded the highest number ; but, as on the coasts of Norfolk and Suffolk, where the wrecks generally occur on outlying sands, nearly all the Life-boats go off under sail, and, as it was evident that some of the best models were prepared with this view, it was considered that these also were entitled to be placed on a par with boats built chiefly for pulling ; and a slight difference was accordingly made in its favour.

These preliminary formula having been arranged, all difficulties disappeared. Each model was again brought

forward in its turn, each of its qualities was named and examined in order, and the number, or proportion of the whole number, according to its merits, was proposed, agreed upon, and set down in a column. After some days, when many models had been examined, these numbers were added up, and the relative order of merit in the several boats established. The six boats that stood first on the list were then for the third time brought forward, and placed together side by side, their several points again examined, and the models carefully compared with each other. The issue was a confirmation of the values already adjudged, and it was ultimately decided that Mr. JAMES BEECHING, of Great Yarmouth, was the successful candidate for the premium offered for the best model of a Life-boat, he having obtained 84 marks out of the maximum of 100.

The result of the labours of the Northumberland Committee, which was fully concurred in by Admiral Sir BALDWIN WALKER, Surveyor of the Navy, was embodied in an elaborate Report, accompanied by a plate of the Prize Life-boat, and of several of the principal boats brought under the Committee's notice, of which drawings were prepared by Mr. JOSEPH PROWSE, then Draughtsman in H.M. Dockyard, Woolwich, and now the zealous Surveyor of Life-boats to the Institution. This Report was published at the sole expense of the Duke of NORTHUMBERLAND, and copies of it were presented by him to all the competitors for his prize, to the principal authorities in the United Kingdom, and to the Maritime Governments throughout the world.

A selection of the competing Model Life-boats was afterwards shown on a large stand in the Great Exhibition of 1851, at the desire of the Committee of the Naval Section. The Jury of that Class in their Report to the Commissioners of the Exhibition said in respect to them, "Models of these very Life-boats figure amongst the most valuable contributions to the Great Exhibition, and furnish a splendid example of liberality in the cause of humanity and practical science, never surpassed if ever equalled."

Together with the prize Life-boat Report was published the first Wreck Chart of the British Isles, of which the annexed is an exact copy.

A comparison of this chart with that of 1872, at page 42, cannot fail to impress the reader with one gratifying fact, viz., the great increase since 1850 in the number of Life-boats on the coasts of the United Kingdom. At that period there were only ninety-six ; and these, being under the supervision of many different Societies and Local Boards, were so indifferently cared for that, as the Charts point out, one half were *unserviceable* ; while at the present time the NATIONAL LIFE-BOAT INSTITUTION possesses no less than 242 boats, all of which are in as thorough a state of efficiency as human ingenuity and a brave crew can make them.

In consequence of the imperfect manner in which the Record of Wrecks was kept in 1850, it would not be possible to make a comparison of the disasters of that period with those of recent years. Returns are now promptly and accurately supplied to the Board of Trade by responsible officers on the coast ; these are afterwards carefully recorded and systematically tabulated by that department ; and in that state the Wreck Register and Chart are presented every year to Parliament. One fact, however, stands prominently forth, in the comparison between the state of things in 1850 and 1874 : that while hundreds of lives perished at the former period from shipwrecks on our coasts owing to the want of efficient means to save them—few, if any, perish in the present day which can possibly be saved by Life-boats and the Rocket Apparatus.

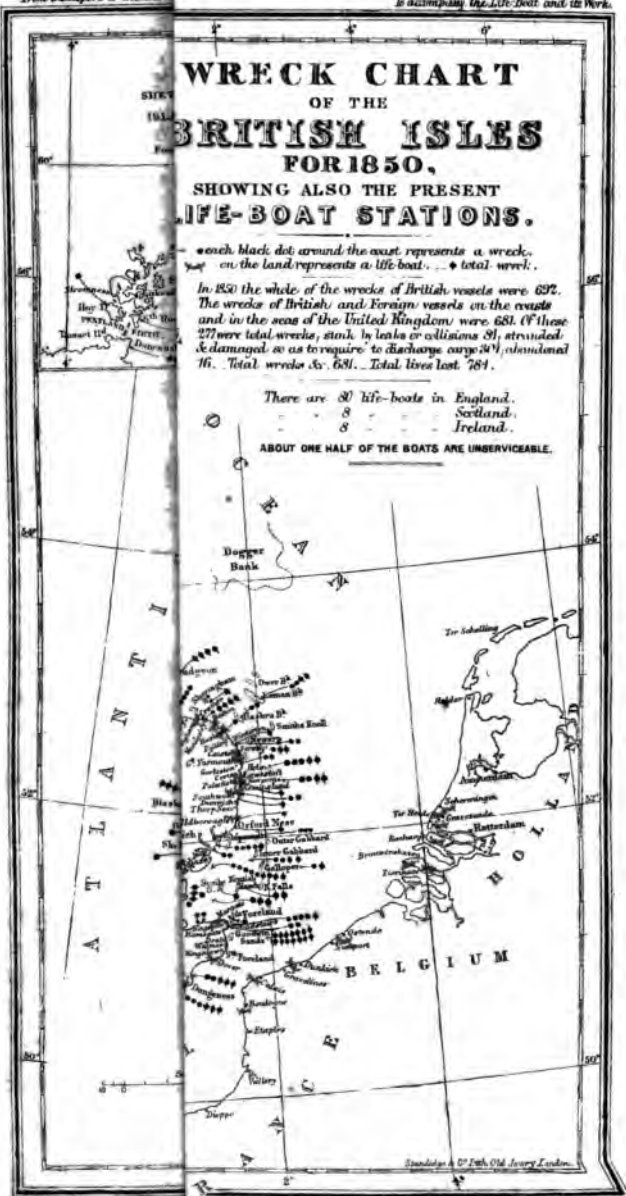
During the past twenty years a complete synopsis of these national documents has appeared in the 'Life-boat Journal,' and the newspapers of the day ; and such comments have largely contributed to mature the public mind in regard to the state of unseaworthy ships and the sad condition of our seamen.

• each black dot around the coast represents a wreck,
 * on the land represents a life boat. ... ♦ total wreck.

In 1850 the whole of the wrecks of British vessels were 632. The wrecks of British and Foreign vessels on the coasts and in the seas of the United Kingdom were 681. Of these 227 were total wrecks, sunk by leaks or collisions 81, stranded & damaged so as to require to discharge cargo 24, abandoned 16. Total wrecks &c. 681. Total lives lost 284.

There are	30	life-boats in	England.
"	8	"	Scotland.
"	8	"	Ireland.

ABOUT ONE HALF OF THE BOATS ARE UNSERVICEABLE



1

1

17

CHAPTER V.

LIFE-BOATS BUILT BY BEECHING—ACCIDENTS TO LYTHAM AND RHYL BOATS—LIFE-BOAT DESIGNED BY MR. JAMES PEAKE—DESIGN ALTERED AND MODIFIED—THE 'LIFE-BOAT JOURNAL'—THE SHIPWRECKED MARINERS' SOCIETY—CHANGE OF TITLE BY THE NATIONAL SHIPWRECK INSTITUTION — MUNIFICENT BEQUEST BY CAPTAIN HAMILTON FITZGERALD, R.N.—THE BOARD OF TRADE—THE ROCKET APPARATUS.

MEANWHILE Mr. JAMES BEECHING constructed a twelve-oared boat; it was 36 ft. long, and was the first self-righting Life-boat ever constructed. He also built one on the same plan for Boulmer, on the coast of Northumberland.

The first boat was purchased by the Ramsgate Harbour Commissioners, and it afterwards performed many gallant exploits, and saved a large number of lives. In a subsequent chapter some account will be given of her noble services.

He also built other boats of that class, but did not strictly follow the original design. Amongst them were two for the Shipwrecked Mariners' Society, which Society had placed some Life-boats on the coast. The two in question were stationed respectively at Lytham and Rhyl; but unfortunately those boats met with lamentable accidents in the year 1852.

There is no doubt that in both those cases the imprudent carrying of sail was the immediate cause of the

disasters, their sails being more adapted for racing than for storm sails ; besides, the boats were faulty in their form, faulty in their fittings, and faulty in their mode of ballasting. The water ballast escaped by the pump-hole when the boats rolled, and the tank, not being full, became a shifting ballast, which of course is very dangerous in any boat.

The Lytham Life-boat was 28 ft. long, 7 ft. wide, $3\frac{1}{4}$ ft. deep, and had 25 cwt. of water ballast. The Rhyl boat was 26 ft. long, 6 ft. wide, 3 feet deep, and had 18 cwt. of water ballast.

At the time it was generally supposed that the boats were built after the prize model ; but it afterwards proved that such was not the case, there being material differences between them.

The Life-boat Committee not being altogether satisfied with BEECHING'S boat had previously requested Mr. PEAKE, one of their number, to go over the various competing designs once more ; and after careful examination to embody as many as possible of the good qualities of the best plans into a new design, by which it was hoped the errors of BEECHING'S plan might be overcome.

Such a boat was accordingly designed by Mr. PEAKE, and, by the authority of the Lords of the Admiralty, was built at Woolwich Dockyard at the expense of the Government, under Mr. PEAKE'S personal superintendence.

The first trial of it on the coast was made at Brighton, on the 3rd of February, 1852, in a strong south-west breeze. The Duke of NORTHUMBERLAND and several Naval Officers and others, along with a large body of the fishermen and boatmen of the place, watched the trial with much interest.

Its extreme length was 30 ft., length of keel 24 ft., breadth of beam 8 ft., and its depth $3\frac{1}{2}$ ft. It pulled

ten oars double-banked. It had side air-cases under the seats, and raised air-cases, 4 ft. long, in the extremes up to gunwale height, the tops being covered with a good coating of cork, to prevent their being stove if jumped upon. In order to free the boat of any water she might ship, 8 tubes closed by self-acting valves, passed through the deck and bottom. With the ballast of an iron keel of 7 cwt., the boat weighed 46 cwt. The draught of water was 15 in., and 18 in. with the crew on board. It was proved by this trial—

1. That when the boat had been hove keel up by a crane, she righted herself in five seconds.

2. That when light she entirely freed herself from water in fifty-five seconds.

3. That on taking the beach through heavy rollers the boat showed great buoyancy and stability, and brought her crew on shore without shipping water.

4. That she could carry thirty persons besides her crew, or forty-two in all.

Many modifications and alterations were made in this boat from time to time, after the numerous trials and experiments to which it was subjected, and ultimately it was completed and presented to His Grace, who had three others built similar to it at his own expense, besides the one on BEECHING'S design, with Transporting Carriages and Boat Houses complete, for the use of the fishing stations and shipwrecked crews on the coast of Northumberland.

After these boats had been tested on the coast by its Inspector of Life-boats, some of them in gales of wind and heavy seas, during the following winter, the NATIONAL LIFE-BOAT INSTITUTION proceeded cautiously to build others on the same plan; and this class of boat, with certain important modifications and

improvements in form, it has continued to adopt up to the present time—the Committee and its Officers having, however, incessantly laboured to introduce into the construction of the boats every improvement that modern science and actual trials in the heaviest storms could suggest ; so that the Life-boat of the Institution may now be truly designated an *omnium gatherum*, and cannot be looked on as any one man's design or invention.

In the year 1852, the '*Lifeboat*, or Journal of the National Life-boat Institution,' was first published, with the view of laying before the public all the information respecting the construction and establishment of Life-boats—the number of Shipwrecks—the exertions made to save Life and Property—and the prizes and medals awarded to those who had been most active in that noble service.

Prior to the year 1839, the "Royal National Institution for the Preservation of Life from Shipwreck" was the only Institution for the benefit of Shipwrecked Seamen whose sphere of action extended over the whole coasts of the United Kingdom ; but in that year the valuable Society termed the "Shipwrecked Fishermen and Mariners' Benevolent Society" was founded. That Society, in addition to its ordinary work of relieving the temporal wants of shipwrecked persons, and helping the families of deceased members, established a few Life-boat Stations on the coast ; but in 1853 it offered to hand them over to the Life-boat Institution, with the funds raised for their special support, provided the latter would alter its title, so as to prevent any misconception of their respective duties. Accordingly, in 1854, "The Royal National Institution for the Preservation of Life from Shipwreck" agreed to alter its title to that of "THE ROYAL NATIONAL LIFE-BOAT INSTITUTION,

FOUNDED IN 1824 FOR THE PRESERVATION OF LIFE FROM SHIPWRECK." The two Institutions since that period have worked cordially together ; the one in saving life, and the other in fostering it when saved.

The year 1856 was also a very eventful period in the history of the NATIONAL LIFE-BOAT INSTITUTION. The late Captain HAMILTON FITZGERALD, R.N., a previous liberal contributor to its funds, left it the munificent legacy of £10,000, and in no way restricted its application. The Committee, feeling deeply the confidence which this gallant Officer had reposed in them, decided to carry out his humane object by expending the whole amount, if necessary, in planting additional Life-boats on the coast. The result was a large increase in the number of its Life-boats, and, as a sequence, in the number of lives saved.

The Institution has, since then, through the liberality of the nation, been enabled to pursue vigorously its great work on the coast, and has, probably, made the most striking and remarkable progress on record, as far as the history of benevolent Societies is concerned. It has now a noble Life-saving Fleet of 242 boats under its management, and has, since its formation, contributed, by these and other means, to the saving of upwards of 22,000 lives from Shipwrecks on our coasts. It is impossible to conceive the blessings that have thus been conferred on countless families by the preservation of so many human beings from a watery grave.

And here it is only right to mention that in 1854, after the passing of the Merchant Shipping Act, the Board of Trade, being anxious to assist the Institution, as before stated, in the Preservation of Life from Shipwreck on our coasts, came to an arrangement with it, whereby, on certain conditions, the Board undertook to repay from

the Mercantile Marine Fund sums expended in payments of Coxswains' salaries and rewards to the crews of the Life-boats for going out in them, either on service or exercise.

Thus the Society was materially aided in its efforts to found new Life-boat Stations, and to improve the efficiency of the older establishments.

But at the close of the year 1869 its Committee, finding that the generous support of their countrymen was sufficient to maintain and work their Life-boat Fleet, and to meet all other requirements, and feeling confident that they could rely on a continuance of that support, felt it a public duty to decline any further assistance from funds raised by taxation; and while heartily thanking the Board of Trade for the cordial and liberal co-operation which they had afforded to the Institution, it relinquished any further assistance from the Mercantile Marine Fund.

In addition to the assistance that had been thus rendered to the NATIONAL LIFE-BOAT INSTITUTION by the Board of Trade, the efforts of that Department in organising Rocket Apparatus Stations on the coasts of the United Kingdom, and in the maintenance of the same in thorough working order, have been unceasing. This means of saving life contributes every year, under the zealous management of the Officers and men of the Coastguard Service, to the rescue of hundreds of persons from Shipwreck at places which, from their rocky nature, preclude the employment of Life-boats.



CHAPTER VI.

OUR SHIPPING TRADE—EXTENT OF OUR SEA-BOARD—A YEAR'S WRECKS
ON OUR COASTS—LIVES LOST—SHIPS LOST—LIVES SAVED—THE
WRECK CHART OF THE BRITISH ISLES FOR THE YEAR 1872
GEOGRAPHICALLY EXPLAINED.

IN order to have some conception of the character of the work of the Institution, it is necessary to give as briefly as possible some account of the commerce of this country, and the number of ships which annually reach and leave our shores, together with the number of lives and value of the property thus exposed to the perils of the sea. As a rule "dry statistics" are well avoided; yet some attention to the following details respecting wrecks on the Coast must convey to an intelligent reader the absolute necessity for the organised system which the Institution has now so firmly established, and which has resulted in sailors of all nations, whose ships may be unhappily wrecked on our shores, having such confidence in the resources for their rescue. So strongly is this feeling often manifested that crews cling to their captains and ships while there is the least remnant of a hope of getting their vessels out of danger, and even at periods when the Life-boat men know by long experience the imminent risk the distressed sailors are incurring by their tenacity of losing their lives.

In the absence of the wreck statistics of 1873, which have not yet been published, we find that the number of

vessels which entered inwards and cleared outwards from the ports in the United Kingdom in 1872, including repeated voyages, was 612,211, having a registered tonnage of 102,938,262 tons. We also learn from Returns published by the Registrar-General of Seamen, that on the 31st of December, 1873, the number of British Vessels registered, exclusive of River Steamers, was 20,799, having a total tonnage of 5,473,932 tons, and crews numbering over 200,000 men and boys. The value of the enormous commercial transactions in which these ships are engaged in one year is believed to represent about six hundred millions sterling.

It will also be interesting to know that the sea-board of England and Wales is 2,000 miles in extent, and that the Institution has on that length of coast 181 Life-boats; the Scotch Coast is 1,500 miles in length, on which the Society has 30 Life-boats; while the length of the Irish Coast is 1,400 miles, on which the Institution has 31 Life-boats.

As regards shipping disasters on our coasts, we find from the last Annual Wreck Register, published by the Board of Trade, that the number of wrecks, casualties, and collisions from all causes on and near the coasts of the British Isles in the year 1872, was 1,958, with the loss of 590 lives.

The number of vessels lost or damaged on these occasions was 2,381, representing a registered tonnage of 581,000 tons, and with crews to the number of 22,757 men and boys.

The number of vessels wrecked in 1872 had increased on the previous year by 392. It should here be explained that the number of ships represented in the wrecks, casualties, and collisions of the year, is greater than the number of actual casualties, inasmuch as in

each of the 409 cases of collision, two or more vessels of course were involved.

Of the 2,381 ships, 1,878 are known to have been ships belonging to Great Britain and its dependencies, with British certificates of registry; and 430 are known to have been ships belonging to foreign countries and states. Of the remaining 73 ships, the country and employment are unknown. Of the British registered ships, 1,156 were employed in the British coasting trade, and 722 were employed in the (over sea) Foreign and Home trade. Of the ships belonging to foreign countries and states, 19 employed in the British coasting trade met with casualties.

Of the total number of wrecks, &c. (1,958), reported as having occurred in 1872 on and near the coasts of the United Kingdom, 409 were collisions, and 1,549 were wrecks and casualties other than collisions.

The annual average number of wrecks on the coasts of the United Kingdom reported in 1852-71, divided into four periods of five years, is as follows:—1852, 1,115; 1853, 832; 1854, 987; 1855, 1,141; 1856, 1,153. Total for the five years, 5,228, or an annual average of 1,045 wrecks. 1857, 1,143; 1858, 1,170; 1859, 1,416; 1860, 1,379; 1861, 1,494. Total for the five years, 6,602, or an annual average of 1,320 wrecks. 1862, 1,488; 1863, 1,664; 1864, 1,390; 1865, 1,656; 1866, 1,860. Total for the five years, 8,058, or an annual average of 1,611 wrecks. 1867, 2,090; 1868, 1,747; 1869, 2,114; 1870, 1,502; 1871, 1,575. Total for the five years, 9,028, or an annual average of 1,805 wrecks.

The following list shows the parts of the coasts on which the wrecks and casualties, on and near the shores of the United Kingdom in 1872 happened; it will be seen that the greatest number occurred on the East

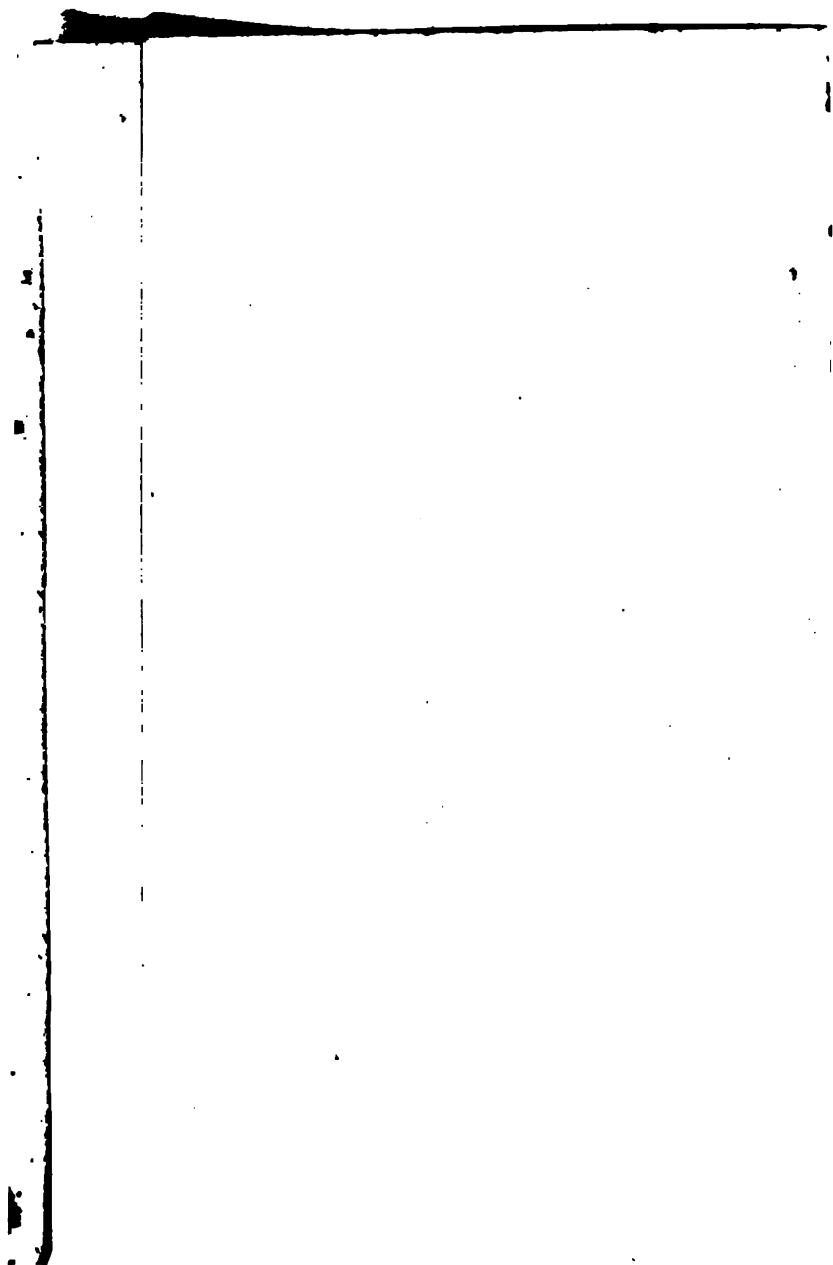
Coast. The numbers are as follows :—East Coast, 885 ; South Coast, 276 ; West Coast, 516 ; N. and W. Coast of Scotland, 44 ; Irish Coast, 198 ; Isle of Man, 20 ; Lundy Island, 9 ; Scilly Isles, 10.

The sites of all these disasters are clearly shown in the accompanying Wreck Chart, which also denotes the positions of the Life-boat Stations of the Institution. It represents the wrecks on our coast for the eighteen months ending the 30th of June, 1873. The casualties which occurred in 1872 are marked on the Chart in *black* ink—and on which we shall presently have a word to say—while those for the first six months of 1873 are marked in *red* ink.

The *black* dots which cluster all round the Chart, and which at certain points stand in dense groups, and then thin away to a single file, define the positions of the shipping casualties of the year 1872. They are thickest on the Eastern Coast ; and, beginning at the Firth of Forth, we find that the shores of that estuary have numerous dots, while the Bass Rock has a little group in its neighbourhood, and there is a thin sprinkling along the coast till we get to Hauxley, and thence to the mouth of the Tyne.

Here are the first considerable groups on this line of coast, followed by others off Sunderland, and at the mouth of the Tees, and then a considerable number along the rocky coast from Saltburn to Whitby. Scarborough and Filey then have a group of their own, while Flamborough Head and Bridlington show a large number of disasters.

The low-lying Yorkshire shore from Bridlington to Spurn Head shows but few wrecks, but off the Humber, and along the coast of Lincolnshire as far as Theddlethorpe, there is another heavy list of casualties. Thence



southward to Boston Deep, and round the Wash, they are not very frequent, but along the northward coast of Norfolk the casualties are rather numerous. A large group occurs just as the coast again trends to the south ; and all along the Eastern Counties, from Yarmouth to Dunwich and Misner Haven, the wrecks lie thick together. They are pretty frequent as we pass down to Harwich and along the Essex Coast, and the mouth of the Thames brings a large contribution to the roll of Shipwrecks. The coast of the Channel from the North Foreland to Dungeness Lighthouse, including the Goodwin Sands, is very thickly dotted, as usual, with the marks of destruction.

Along the South Coast the calamities are comparatively few. There is a small group at Beachy Head ; a few round the Isle of Wight ; Durlston and St. Alban's Head are also just spotted, and a large sprinkling lies round the Bill of Portland. From thence the beautiful coasts of Dorset and Devon seem almost clear ; there are, however, several dots off them in the Channel, and a few off the Start Point. We then get round to Plymouth, where they cluster again. The Eddystone, well marked out by its splendid Lighthouse, is no longer terrible ; but between it and the Breakwater is a distressing group of casualties. Then the coast is almost clear till Deadman's Point is reached and the Lizard is almost in sight, and then groups fringe the shore up to the Land's End. The northern coast of Cornwall is comparatively clear. There are a few round Lundy Island ; some more near Ilfracombe, and many more as Weston is passed. As the important port of Bristol is approached, they largely increase, the Bristol Channel furnishing one of the most dense groups in the year's Wreck Chart.

Considerable numbers are also seen on some portions of the Welsh Coast. The peninsula of Pembroke-

shire is largely spotted round, and all along the Western Coast, from St. David's Head to Carnarvon Bay, the wrecks of the year had somewhat increased. They gather more thickly again round the Isle of Anglesea ; and then, farther north, other large groups lie outside the mouths of the Mersey and the Dee, and along the Lancashire Coast as far as Southport. Thence, northward, the line is simply a broken chain of single spots, which gather rather thicker as we near the Clyde, and then die away till the whole of the Hebrides show but four—two on South Uist, one on North Uist, and the fourth at Northern Stornoway ; while off the Orkney and Shetland Islands, we find that fourteen disasters occurred in the year ; and on the North and East Coasts of Scotland, down to Anstruther, we count the sites of nearly sixty wrecks.

On the Northern, Eastern, and South-Eastern Coasts of Ireland, from Lough Swilly to Cape Clear, the work of destruction was somewhat busy, as is shown on the Chart, the marks clustering around the important ports of Belfast, Dublin, Waterford, and Cork ; while on the whole of the West Coast of Ireland, which is not much frequented by ships, we find only seventeen wrecks.

The bright spots, however, on the Chart and in the Register are the services of the Life-boats of the Institution and the Life-preserving Apparatus of the Board of Trade, by which, in conjunction with shore and ships' boats and other means, 4,634 lives were rescued during the year ; but no one can doubt that the larger share of peril and exposure fairly belongs to the crews of the Life-boats, the boats being mostly called on to render their assistance when all other kind of succour would be hopeless.

CHAPTER VII.

OUR COAST LIFE-BOATS AND THEIR EQUIPMENT—DANGERS OF ORDINARY OPEN BOATS—QUALITIES NECESSARY IN A LIFE-BOAT—MODES BY WHICH EXTRA BUOYANCY IS OBTAINED AND THE SELF-DISCHARGE OF WATER IS PROVIDED FOR.

WE will now proceed to give some further explanations of the character and specialities of our coast Life-boats and their equipment, and more particularly of the famous, world-renowned, self-righting Life-boat of the NATIONAL LIFE-BOAT INSTITUTION, which has been pronounced by our hardy boatmen and fishermen who go afloat in her as the best and safest boat that was ever launched from our shores.

Although the word Life-boat has not in itself any definite meaning, it is generally understood as signifying a boat specially constructed for saving life in storms and heavy seas, when ordinary open boats could not attempt to do so except at the imminent peril or certain death to those within them.

What, then, are the causes which make ordinary open boats unsafe in rough seas? And in what manner are those causes removed in Life-boats?

The principal causes of a common open boat being unsafe in a heavy broken sea are, its liability to fill with water and swamp from a wave breaking into it, or by its upsetting, and loss of stability from all water within it

falling to one side with every motion of the boat. It is therefore obvious that the chief requirement of a Life-boat is the counteraction as far as possible of these defects.

The qualities necessary in a Life-boat may be thus summed up :

1. Extra buoyancy.
2. Self-discharge of water.
3. Ballasting.
4. Self-righting.
5. Stability.
6. Speed.
7. Stowage-room.
8. Strength of build.

We will now proceed to observe, as clearly as can be done in the absence of technical language, on each of these characteristics, and devote separate chapters to some of the most important of them.

Extra Buoyancy.—The chief peculiarity of a Life-boat, which distinguishes it from all ordinary boats, is its being rendered unsubmergible, by attaching to it, chiefly within board, water-tight air-cases, or fixed water-tight compartments under a deck, or empty casks. This property, in one or more of the above forms, is common to all Life-boats, although some possess it in an inadequate degree, or badly distributed. So long as the necessary space for rowing and working the boat, and for the stowage of shipwrecked persons, is not interfered with, the amount of this “extra buoyancy” cannot be too great.

Extra buoyancy may intelligibly be defined as the excess of floating property in any body immersed in a fluid, the expression of which in pounds indicates the number of pounds’ weight of any other body that it is

capable of floating in addition to itself. Thus a log of fir timber, the specific gravity of which wood is about half that of water, will float with only half its body immersed, the remaining half representing its extra buoyancy. A piece of dry fir-wood has therefore extra buoyancy about equivalent to its own weight.

This important property in a Life-boat should be sufficient in amount to enable it to be loaded with people, and nearly filled with water, without its then being so deeply immersed as to be unmanageable.

Especially it is essential that the spare space along the sides of a Life-boat, within board, should be entirely occupied by buoyant cases or compartments; as when such is the case, on her shipping a sea, the water, until got rid of, is confined to the midship parts of the boat, where, to a great extent, it serves as ballast, instead of falling over to the lee side and destroying her equilibrium, as is the case in an ordinary open boat. Barrels or casks, which do not conform in shape to the sides of a boat, but leave large interstices to be occupied by water, are not suitable vehicles for providing extra buoyant power. The north country or Greathead class of Life-boats, of which those at Shields may be considered the type, have their extra buoyancy provided by a water-tight deck at the load-water line, the space between which and the boat's floor is formed into water-tight air-chambers; water-tight compartments are also built along the sides of the boat, within board, sloped from the gunwale to the deck, thereby effectually excluding any water shipped from settling on one side. The excellent Life-boats designed by Messrs. LAMB & WHITE, of Cowes, which have been extensively supplied to ships and yachts, and to the Coastguard, have their buoyancy effected by similar air-compartments along the sides,

extending from the gunwale to the boat's floor, but without any enclosed space under the deck. The large sailing Life-boats on the Norfolk and Suffolk Coasts, which are admirably adapted to the work of going out to wrecks ashore on far outlying sandbanks — such being the special requirement of that part of the coast — have very wide detached air-boxes or tanks, strongly made, to correspond in form with the boats' sides, and extending from the thwarts to the floor ; but they have no deck. The Institution's Self-righting Life-boats have a water-tight deck at the load water-line, and detached air-boxes along the sides, from the thwarts to the deck. A great amount of extra buoyancy is also in these boats derived from large end air-cases built across their bow and stern, and occupying from 5 ft. to $6\frac{1}{2}$ ft. in length from the stem and stern posts to gunwale height. These cases are chiefly intended to provide self-righting power ; but in the event of the boat being stove in, and the space below the deck being filled with water, they alone have sufficient buoyancy to float her. Thus, in a 33 feet Lifeboat the buoyancy obtained by the end air-cases above the line of flotation is $4\frac{1}{4}$ tons ; in the side air-cases the buoyancy is equal to $1\frac{1}{2}$ tons ; and the buoyant space under the deck is equal to $5\frac{1}{2}$ tons.

Self-Discharge of Water.—The second peculiar characteristic of a Life-boat, and which is closely allied to the preceding, although it is not possessed by all Life-boats, is the capability of self-discharging in a few seconds any water which may be shipped by the breaking over of a sea, or by a boat being suddenly thrown on her beam-ends. Indeed, without this property, the full advantage of extra buoyancy is not realised, as without it all water breaking into a boat must remain in her, and

become a shifting cargo, settling more or less on one side or at one end, with her every motion.

This self-discharging power is accomplished by means of the water-tight deck at the load water-line, and a sufficient number of large open tubes, having their upper orifices at the surface of the deck, and their lower ones at the boat's floor, passing through the space between the deck and the floor, but hermetically closed to it ; thus providing an open communication between the interior of the boat and the sea, yet without suffering any leakage into the air-chambers under the deck. In some Life-boats these tubes are kept always open ; in others, plugs movable by hand, and having lanyards or handles to them, are fitted, to be withdrawn on water being shipped. In the self-righting boats the tubes are fitted with self-acting valves, which open downwards only, so that they will allow any water shipped to pass downwards, whilst none beyond a trifling leakage can pass upwards through them. This valve is a simple plate, fitting the tube at its upper end, and made to turn on an axis on one side of its centre, as does an eccentric wheel. It is so balanced as of itself to remain shut, and on the slightest pressure of water from below, to shut still closer, whilst, on water falling on it from above, the pressure on the larger division of the plate, being necessarily greater than on the smaller, opens it downwards. Valves, unless self-acting and of very simple construction, are objectionable ; but these are found to answer admirably, and some which have been fifteen years in use are still efficient in the Life-boats of the Institution.

It will be at once readily understood that, as the deck is placed at or above the load water-line, any water which is above it will be above the outside level of the sea with which it has through the valves and tubes a free

communication ; and that, in obedience to the common law of fluids, which binds them to a uniform level, it must instantly, by its own gravity, pass through the valves until none remains above the surface of the deck ; or, if the boat be very deeply loaded, until the level of the water outside, and of that within the boat, shall be the same.

This quality of self-relief of water can, of course, only be possessed in perfection in boats with a raised water-tight deck at or above the load water-line.

Other Life-boats have no relieving holes at all, and, if filled by a sea, their crews have no resource but the primitive, slow, and laborious process of baling with buckets ; to do which the oarsmen must take in their oars, and, for a time, disable their boat.



CHAPTER VIII.

BALLASTING LIFE-BOATS—WOOD AND CORK BALLAST—YOUGHAL LIFE-BOAT—WATER BALLAST—THE NORFOLK AND SUFFOLK SAILING LIFE-BOATS—THE SELF-RIGHTING PRINCIPLE, HOW IT IS SECURED—BALLAST—RAISED AIR-CHAMBERS AT BOW AND STERN—LIMITED BEAM—LIMITED SIDE-BUOYANCY—OBJECTIONS URGED AGAINST THE SELF-RIGHTING PROPERTY REFUTED—RESULTS OF THE PRINCIPLE IN THE LIFE-BOATS OF THE INSTITUTION—TABULATED LIST OF ACCIDENTS TO LIFE-BOATS SINCE 1849.

BALLASTING.—A third and important property in a Life-boat is ballasting. An ordinary open boat cannot with safety be taken into a heavy sea with metal, or stone, or other ballast having greater specific gravity than water, for if she were upset, or filled with a sea, she must then infallibly sink. As, however, a Life-boat is provided with a large amount of *extra* buoyant power, she may with impunity have a considerable amount of ballast of any description within her. We may here observe that ballast of some kind is very contributive to the efficiency of a Life-boat. Not only must it add to her stability, and thereby to her safety, but in proportion to the heaviness of the sea does weight become necessary to insure speed, its momentum being requisite to withstand the blow of each succeeding breaker, and to carry the boat through it as it strikes her ; in the same manner that the fly-wheel of a steam-engine or other machine, regulates and economises the motive power, and compensates

for its irregular or intermittent action. The north country or Greathead Life-boats have generally no ballast, their great breadth of beam being relied on for stability ; but some of them have water let into a tank, constructed for the purpose in the midships of the boat beneath the deck. BEECHING'S Life-boats were also ballasted with water on the same principle ; but through a difficulty in securing the filling of the tanks, and in preventing the escape of the water from them, serious accidents, accompanied by loss of life, occurred, as before mentioned (p. 33), to two of those boats. The Institution's self-righting Life-boats are first ballasted with a heavy iron keel, which acts as a most powerful leverage. These iron keels vary in weight from 3 to 21 cwt. Ballast formed of air-tight cases, and of cork enclosed in water-tight cases, is also used in the self-righting Life-boats of the Institution, of nearly equal weight to the iron keel. Thus a ten-oared boat, 33 ft. long, has an iron keel of 8 cwt., and nearly the same weight of air-cases, and cases of cork stowed beneath the deck.

It is difficult for some persons to imagine that wood or cork can partake of the nature of ballast. It is, however, a fact that any substance heavier than air may be used as ballast, a pound of cork being as much ballast as a pound of iron or lead. The advantage of employing a ballast of less specific gravity than water is, that in the event of a boat being stove in, and the spaces below the deck filling with water, the extra buoyancy of the material then comes into play, and prevents the boat from being so deeply immersed as to become unmanageable.

In February, 1858, the Institution's Life-boat at Youghal, County Cork, in launching, got stove on a rock, and a hole was made in her floor as large as a man's

head: she became at once deeply immersed, and the water rose to five or six inches above her deck, the spaces beneath it having filled with water; nevertheless she proceeded on her mission; and her gallant crew rowed her two miles to a wrecked Austrian ship, and in the midst of a very high surf, which frequently broke over and filled her, she took off fourteen men from the vessel's bowsprit, and conveyed them safely to the land. Had all her ballast been of metal, she would undoubtedly have become so deeply immersed after being stove, that she could not have proceeded to the wreck, and all on board must have perished.

In consequence of the liability of enclosed tanks to leak from decay or injury, and of the water thereby spreading over the whole floor of the boat, water-ballast has been discontinued in most *rowing* Life-boats.

With the exception of three or four of the old boats on the North Country plan, which still retain water-tanks, the only boats in the United Kingdom now ballasted with water are some of the Norfolk and Suffolk Life-boats. These boats deserve especial notice. They are only nineteen in number, twelve of them being exclusively sailing-boats varying from 36 to 46 ft. in length, and from $10\frac{1}{2}$ to 12 ft. in breadth.

As those of the larger size are unmanageable in a heavy sea under oars, and as they have often to work to windward against the heaviest gales to the rescue of the crews of vessels wrecked on the numerous outlying banks which exist off that part of the coast, it is indispensable that they should be heavily ballasted, and have considerable draught of water, to give them good weatherly qualities. In order, then, to make this requisite provision, without involving too-much weight for convenient launching, they are provided with water-

ballast, in addition to having iron keels. This water is let in by the same apertures that serve for self-relief of water, the plugs which close them not being withdrawn until the boat has got off the beach. The quantity of water thus let in is very great, being in the largest boat of this class not less than *seven tons*—which water is not retained in an enclosed tank, but left to fill every unoccupied space up to the level of the plane of flotation. This unoccupied space is chiefly confined to a narrow channel of about one-third of the boat's width. Cross air-cases at bow and stern, to the level of the thwarts, also confine it lengthwise. The average area of these channels is about 20 ft. long by 4 ft. wide, in which the water lies to an average depth of $2\frac{1}{2}$ ft., in amount equal to about 200 cubic ft., or $5\frac{3}{4}$ tons.

A great quantity of water also settles between the timbers of these boats, beneath the side and end air-cases, which cases are movable separate boxes, and which cannot be made to fit so closely as to fill up those spaces. These boats have also iron keels varying from 12 to 17 cwt.

At first thought it would appear highly dangerous to have so large a quantity of water loose within a boat: the truth is, however, that the safety of the principle consists in the largeness of the quantity, taken together with the circumstance of its being cut off from access to the ends and sides of the boat. If these boats were less heavily ballasted, they would be more lively, rising and falling with every motion of the sea, and the water within them would be constantly in motion towards the lowest level; but thus heavily weighted and propelled by powerful sails, they cut deeply through every sea instead of rising to it—they, in nautical phraseology, make much worse weather of it than a lighter and a more lively boat

would do ; heavy bodies of " green sea " break over them so as sometimes to altogether submerge their crews, and to hurl them from one end of the boat to the other, but their stability is so great that the boatmen have unbounded confidence in them, and are protected against being washed overboard by " ridge ropes " rove through iron stanchions round the boat, fixed in the gunwales.

The only boat of this class belonging to the NATIONAL INSTITUTION which has ever upset was the Southwold Life-boat in February 1858, the then most recently-constructed boat of the class. She was taken out, through a rather high surf, for the quarterly exercise of her crew. On returning to shore, before entering the surf, the crew injudiciously inserted the plugs, and pumped out about two-thirds of the water-ballast. They then ran her under sail, with too much way, into the surf, when a sea overtaking her, threw her stern up ; the ton and a half of water still in her then rushed to the bow, which became completely submerged, and, broaching-to across the surf, she immediately upset. Her masts broke off on coming in contact with the ground, and not being a self-righting boat, she remained keel up. Her crew of fifteen men, all having on their life-belts, in accordance with the rules of the Institution, were saved ; but three gentlemen—who had gone off as amateurs, and had refused to put on life-belts which had been offered to them—were drowned, although one at least of them was known to be a good swimmer. Had this boat been full ballasted, the sea would probably have broken over the stern instead of lifting it, and the accident would not then have occurred. She has, however, since that period been ballasted with blocks of wood.

The Gorleston private Life-boat built on this prin-

ciple also upset in January 1866, and in December 1867, and thirty-eight lives were lost out of the fifty-two thus endangered.

Self-righting.—We come now to the fourth property, that of self-righting if upset. This, although a most important principle, is not universal in Life-boats, and twenty-one out of the 242 Life-boats of the Institution do not possess that quality.

Some boat-builders and others have objected to it, under a misapprehension that other more necessary qualities, and especially that of stability, are sacrificed to it. So far, however, from this being the case, the very means which are employed to produce self-righting add to the stability of the boat, and improve her in other respects; and an acquaintance with the principles by which the self-righting property is obtained would soon dissipate any such mistaken views.

It is a singular fact that this property which, when proposed in 1850 as one of the requisites of a good Life-boat, was almost treated with derision by some of our best boat-builders, should have been acknowledged and publicly exhibited at Leith by the Rev. JAMES BREMNER, of Walls, Orkney, as far back as July 1800. He first proposed, in 1792, to enable all ordinary boats to self-right by placing two water-tight casks parallel to each other in the head and stern sheets, and by attaching 3 cwt. of iron to the keel. A boat thus fitted was publicly tried at Leith and repeatedly righted, for which a piece of plate was awarded to Mr. BREMNER, and in 1810 the Society of Arts voted him a silver medal and twenty guineas. Yet in 1850, half a century later, the practicability of making a boat right herself was almost decided!

The real difference between an ordinary and a self-

righting boat is, that whilst the former, on being thrown by a sea or other force on one side, beyond a certain angle, offers no further resistance, and cannot return; the latter, on the contrary, continues to oppose such a force in every position in which it can be placed, unless nicely balanced with its keel exactly above the centres of gravity and motion, or, in nautical *parlance*, "keel up," a position in which it could not even momentarily remain in a rough sea.

The self-righting power is obtained by the following means:—1st. The boat is built with considerable sheer of gunwale, the bow and stern being from 1 ft. 6 in. to 2 ft. higher than the sides of the boat at her centre; and the space within the boat at either extremity, to the distance of from 4 to 6½ ft. from the stem and stern posts, to gunwale height, is then enclosed by a sectional bulkhead and a ceiling, and so converted into a water-tight air-chamber, the cubical contents of which, from the thwarts upwards, are sufficient to bear the whole weight of the boat when she is placed in the water in an inverted position, or keel upwards. 2ndly. A heavy iron keel (from 3 to 21 cwt.) is attached, and a nearly equal weight of light air-cases, and cork ballast cases is stowed betwixt the boat's floor and the deck. No other measures are necessary to be taken in order to effect the self-righting power. When the boat is forcibly placed in the water with her keel upwards, she is floated unsteadily on the two air-chambers at bow and stern, whilst the heavy iron keel and other ballast being then carried above the centre of gravity, an unstable equilibrium is at once effected, in which dilemma the boat cannot remain, the raised weight falls on one side or the other of the centre of gravity, and drags the boat round to her ordinary position, when the water shipped during the evolution quickly escapes

through the relieving tubes, and she is again ready for any service that may be required of her.

We will now point out how far any sacrifice has been made to secure the self-righting property.

Its requirements are :—

1. Ballast.
2. Enclosed or raised air-chambers at bow and stern, placed sufficiently above the centre of gravity.
3. Limited breadth of beam.
4. Limited side buoyancy.

1. BALLAST.—Now the first of these requirements, ballast, is a positive source of safety. It necessarily increases lateral stability, and, by adding to the weight of a boat, gives a greater momentum when rowing against a high broken sea ; which is often a source of safety, as she may thereby pass safely through or over a sea, instead of being driven astern by it. From the same cause, also, she can be more readily held back, and be prevented from “running” on a sea when returning to the shore, which is one of the greatest dangers that a boat can encounter.

2. RAISED AIR-CHAMBERS.—The second requirement, raised air-buoyancy at bow and stern, is a great source of safety, by preventing all water or other weights from settling at either extreme end of a boat, and also by preventing much water from breaking over the bow or stern.

It will be readily conceived how advantageous it must be, on a heavy sea breaking over the bow of a boat, to have a buoyant power equivalent to more than a ton weight instantly resisting submersion. When placed under such circumstances, one of the North Country Life-boats would take half a ton of water into the bow from a

single surf, where a good self-righting boat would scarcely ship a bucket-full.

3. LIMITED BEAM.—There is no doubt that great breadth of beam is a source of safety, as giving increased stability, and that some sacrifice of beam is required for self-righting. But great breadth of beam involves loss of propulsion against a heavy sea, which is often loss of safety, and requires the use of longer oars with more men to work them, all which are disadvantages. A self-righting boat with limited beam (say one-fourth of length) has, therefore, the advantage over the wider boat in these respects, whilst the loss of stability from diminished beam is made up for by an equivalent stability derived from ballast.

4. LIMITED SIDE BUOYANCY.—Again, some sacrifice of stability is made by a reduction of side buoyancy, but it is the only real sacrifice, and is more than made up for by the gain of the self-righting power, as shown in the accompanying Tables of the relative loss of life which has been occasioned by accidents to Life-boats possessing that property and to those which did not.

Since the first self-righting Life-boat was stationed on the coast in 1852, 35 boats of that class have upset, on board of which were 401 men; and of that number 25 only lost their lives, being in the proportion of only 1 to every 16 lives risked. The accompanying tabulated list of the capsizes of self-righting Life-boats gives the details in each case, and shows that in 26 out of the 35 accidents there was no loss of life whatever.

By these Tables it will also be seen that of the entire number of 35 capsizes, 17 occurred during exercise; and these 17 are in nearly every instance accounted for in one or two ways—either from the carelessness or neglect of the crews in belaying sheets and halliards, or from

neglecting the use of the drogue, because the state of the wind or sea led them to apprehend no danger ; or they have resulted from the experiments of the Inspectors or Honorary Secretaries whilst endeavouring to prove to the utmost the qualities of some new or doubtful boat. Out of 17 exercise accidents, 10 occurred when the boats were under oars, 5 when under sail, and 2 when in tow.

Of the 18 capsizes on service, i.e., when rendering aid to a vessel in distress, 10 were under oars, 1 in warping off a beach, 1 at anchor (by being forced broadside to the seas by the tide), 1 alongside a wreck, and 5 under sail. It is noteworthy that during all those years only one man lost his life by boats on service capsizing under sail ; pointing to the fact that when a Life-boat is fairly in the open sea beating against or running before a gale, the chance of a man losing his life from one is infinitely small, even though, from carrying too much sail, they have occasionally capsized.

Again, out of the whole number of capsizes on service and exercise, 15 (nearly half) occurred to the 6-oared single-banked boats, a class of Life-boat which has now been almost entirely superseded by double-banked boats with greater beam.

With regard to the 401 lives endangered by capsizing, it will be seen that, out of the before-mentioned 25 lives which were lost, 20 only were whilst on service, and of these again 15 perished in the month of February, generally the coldest month of the year ; while the remaining 5 were lost in the months of January and December. These facts seem to point to the conclusion, which is also deducible from other information in the possession of the Institution, that the men were too benumbed by the cold to get into the boats, though they had hold of

them, were by degrees forced to let go, and ultimately perished by cold rather than drowning. This is a useful fact to be borne in mind by those who in distant parts of the world have yet their experiences to make in the management of the self-righting boat.

When we turn to the Table of accidents to the Life-boats which do not self-right, we find that since the year 1849, when the Shields Life-boat was capsized, at least 8 Life-boats of other kinds have upset on our coasts, on board which there were 140 men, no less than 87 of whom have been drowned, being in the proportion of nearly 2 out of every 3 lives risked—loss of life having resulted in all but one of those cases. Moreover these accidents, with one exception, when the boat was a 27 feet 8-oared one, all occurred to boats pulling 10 or 12 oars.

The contrast between these results of accidents to the two classes of boats is so extraordinary that it must speak for itself; lest, however, it should appear that the number of self-righting boats that have upset has been excessive, it must be borne in mind that, although the actual number that have done so is greatly in excess of the number of similar accidents to other classes of boats, yet that, in proportion to the number of boats in use of each class, the relative number has been very much less. Moreover, the self-righting boats belonging to the Institution are taken afloat for exercise four times every year, often in heavy surfs, and nearly half of those which have been upset were out for exercise; whilst, on the other hand, the other classes of Life-boats, the greater number of which are not in connection with the Institution, have not been taken afloat for exercise, and consequently have, in comparison, much less frequently incurred the risk of accident.

Apart, however, from the prognostication that such boats would be more unsafe than the previously existing classes of Life-boats, there were three special objections made to them ; and the fact will not be thought to be without interest that experience has proved the fallacy of each.

In the first place, it was predicted that, owing to their great buoyancy, and their high ends at bow and stern, they would hold so much wind that they would never be propelled against a heavy sea and a strong gale. The reply, in this the twenty-second year of their career, is, that they have since been launched in gales of wind many thousands of times, and have saved several thousand lives, and that their failures to effect their object have been so few that we shall probably be within the mark if they are estimated at once in fifty times that their services have been required. It must also be remembered that in heavy gales of wind in some localities, there are often broken seas of such magnitude that no boat in existence could be taken into them without certain destruction.

Secondly—It was foretold that the self-righting property would be of no service, as their crews, after being thrown out of them, would never be able to regain them ; since, being so high out of the water, and holding so much wind, they would speedily be carried to leeward beyond the reach of the unfortunate persons who had been suddenly ejected from them.

The reply to this supposition is, that in only one of the thirty-five cases just quoted, has the Life-boat been carried to leeward of the crew, and they prevented from regaining her ; and that, even when upset under sail, and with the sheets fast, they have righted again, and their crews have regained them without the loss of a single

life. The exceptional case was that of the Padstow Life-boat, which was upset by an enormous sea three-quarters of a mile from the shore, when, being thrown *end over end*, the stern perpendicularly over the bow, and the men being all thrown out, she was carried at once to leeward of them by the same sea by which she was upset, so that they were unable to regain her ; whereas, in every other instance, the boats having been upset more or less on the broadside, those in them have been thrown out to leeward ; and in nearly every instance one or more of the men have remained in them, who have then been able to assist the others to get in.

Thirdly—It was said that, although the men working the boats, being provided with good life-belts, might be able to regain them, any unfortunate wrecked men who might be in them having no belts would be drowned. Again, however, as in the other cases, theory has not been borne out by fact, for, happily, in one instance only has a Life-boat belonging to the Institution been upset with a wrecked crew on board, and in that instance no life was lost. The case referred to is that of the Penmon Life-boat, which had a wrecked crew of five men on board when she upset in March 1868.



TABLE I.—A TABLE showing the NUMBER of SELF-RIGHTING LIFE-BOATS that have been UPSET, and the LOSS OF LIVES occasioned thereby, from 1852 to 1874.

Number.	STATION OF LIFE-BOAT.	Dimensions.		No. of Oars.	Date.	Number of Men on Board.	Number of Lives Lost.	Under Oars or Sails.	On Service or Exercise.
		Length.	Width.						
1	Lyme Regis	27	7½	8	1854. 7 Jan. .	11	1	Alongside a Vessel.	Service
2	Dungeness	28	6	6	1858. 19 Oct. .	8	Nil.	Oars . .	Service
3	Aldborough	32	8½	12	1859. 21 Dec. .	15	3	Warping-out.	Service
4	Ardmore	28	6	6	1860. 6 Nov. .	10	Nil.	Oars . .	Exercise
5	Tramore	30	6½	6	1861. 17 Feb. .	8	Nil.	Oars . .	Service
6	Scarborough	33	8½	10	1862. 14 April .	14	Nil.	Oars . .	Exercise
7	Aberdovey	30	6½	6	8 Dec. .	8	1	Oars . .	Exercise
8	Howth	30	7	6	1863. 20 March .	8	Nil.	Sails . .	Exercise
9	Berwick-on-Tweed . .	30	7½	10	29 March .	14	Nil.	Oars . .	Exercise
10	Silloth	30	7	6	21 April .	8	Nil.	Sails . .	Exercise
11	Blakeney	30	7	6	19 May .	8	Nil.	Oars . .	Service
12	Holyhead	36	8½	12	1865. 14 Jan. .	13	1	Sails . .	Service
13	Arklow	36	8½	12	19 March .	16	Nil.	Oars . .	Service
14	Ferry-side	30	7	6	26 Oct. .	9	Nil.	Sails . .	Exercise
15	St. Ives	30	6	6	28 Oct. .	9	Nil.	Oars . .	Service
16	Lizard	30	6½	6	1866. 2 Jan. .	10	3	Oars . .	Exercise
17	Groomsport	28	6	6	8 March .	9	Nil.	Oars . .	Exercise
18	Fraserburgh	30	7½	10	8 Dec. .	12	Nil.	Oars . .	Exercise

Continued.

TABLE I.—A TABLE, showing the NUMBER OF SELF-RIGHTING LIFE-BOATS that have been Urset, and the LOSS OF LIVES occasioned thereby, from 1852 to 1874—*continued*.

Number.	STATION OF LIFE-BOAT.	Dimensions.		No. of OARS.	Date.	Number of Men on Board.	Number of Lives Lost.	Under Oars or Sails.	On Service or Exercise.
		Length.	Width.						
19	Padstow	32	7 $\frac{1}{2}$	10	1867.	13	5	Oars . .	Service
20	Llandudno	32	7 $\frac{1}{2}$	10	4 Feb. .	13	Nil.	Sails . .	Service
21	Seaton Carew	30	7 $\frac{1}{2}$	10	7 Feb. .	13	Nil.	Oars . .	Exercise
22	Exmouth	32	7 $\frac{1}{2}$	10	16 March .	9	Nil.	Oars . .	Exercise
23	Walmer	37	8 $\frac{1}{2}$	12	26 March .	15	Nil.	Sails . .	Service
24	Penmon	28	6 $\frac{1}{2}$	6	1 Dec. .				
25	New Brighton	32	7 $\frac{1}{2}$	10	23 March .	14	Nil.	Oars . .	Service
26	Hunstanton	32	7 $\frac{1}{2}$	10	2 April .	13	Nil.	In tow .	Exercise
27	Porthcawl	30	7 $\frac{1}{2}$	6	8 April .	12	Nil.	Sails . .	Service
28	Penzance	30	6 $\frac{1}{2}$	6	22 Aug. .	10	Nil.	Sails . .	Service
29	Newquay (Cornwall)	30	7 $\frac{1}{2}$	6	6 Dec. .	14	Nil.	Oars . .	Service
30	Ballywalter	32	7	10	22 Dec. .	12	1	Oars . .	Exercise
31	Appledore (Bideford)	34	7	12	26 Dec. .	14	Nil.	Sails . .	Exercise
32	New Brighton	32	7 $\frac{1}{2}$	10	28 Dec. .			Oars . .	Service
33	Clovelly	33	8	10	1870.	12	Nil.	In tow .	Exercise
34	Skerries	32	8	10	2 April .	13	Nil.	Sails . .	Exercise
35	Stonehaven	33	8 $\frac{1}{2}$	10	1871.				
					14 Jan. .	10	6	At anchor .	Service
					1873.				
					1 Feb. .	12	4	Oars . .	Service
					1874.				
					27 Feb. .				
						Total . .	25		

TABLE II.—A TABLE, showing the NUMBER OF COAST LIFE-BOATS UPSET which would not SELF-RIGHT, and the LOSS OF LIVES occasioned thereby, from 1849 to 1874.

Number.	STATION OF LIFE-BOAT.	Dimensions.		No. of Oars.	Date.	Number of Men on Board.	Number of Lives Lost.	Under Oars or Sails.	On Service or Exercise.
		Length.	Width.						
1	Shields	ft. 33	ft. 11	12	Dec., 1849	24	20	Oars . .	Service
2	Point of Ayr	27	8½	10	Jan., 1857	13	13	Oars . .	Service
3	Southwold	40	11½	12	Feb., 1858	18	3	Sails . .	Exercise
4	Liverpool	30	9½	12	Jan., 1865	11	7	In tow . .	Service
5	Gorleston	42	12	12	Jan., 1866	17	13	Sails . .	Service
6	Margate	33	6½	12	Jan., 1866	13	Nil.	Sails . .	Service
7	Gorleston	42	12	12	Dec., 1867	35	25	Sails (run down).	Service
8	Bridlington Quay . .	27	6½	8	Feb., 1871	9	6	Oars . .	Service
Total							87		

NOTE.—The above Life-boats, with the exception of that at Southwold, were not under the Management of the NATIONAL LIFE-BOAT INSTITUTION.

CHAPTER IX.

ESSENTIAL QUALITIES REQUIRED IN LIFE-BOATS—LATERAL STABILITY,
OR RESISTANCE TO UPSETTING—RICHARDSON'S TUBULAR LIFE-BOAT
—SPEED AGAINST A HEAVY SEA—STOWAGE-ROOM FOR PASSENGERS
—STRENGTH OF BUILD—MATERIALS OF WHICH LIFE-BOATS ARE
CONSTRUCTED.

STABILITY.—The next quality, which is of essential importance in a Life-boat, is lateral stability, commonly called stiffness, being the tendency to preserve an upright position in the water, and proportionate resistance to upsetting sideways. This property is, of course, held in common by all boats, but is more especially essential to Life-boats, they being more exposed to the risk of upsetting than any others.

Stability may be obtained by three modes:—1st. By great breadth of beam ; 2nd. By occupying the interior with air cases, as described already, in such a manner as to leave no space for water to remain in the interior, into whatever position the boat may be thrown, or so to confine it to her central part that it cannot fall much to one side above the centre of buoyancy ; and 3rd. By ballast.

In the self-righting Life-boats of the Institution very great stability is obtained by an iron keel, and other ballast, and by flatness and length of floor, with moderate beam only.

RICHARDSON'S Tubular Life-boat has a great amount of stability, as will be seen by the following brief account of that boat. It is altogether different in principle to any other boat, and consists of two long tubes running parallel to each other a few feet apart, having their ends turned upwards and inwards, and terminating in points, with an open-work or grating-deck with corresponding thwarts, all supported above the tubes. It was designed and brought out by Messrs. H. & H. T. RICHARDSON, two Welsh gentlemen, father and son. They had for many years a small boat of the same class in use on a lake in Wales, and when the Duke of NORTHUMBERLAND offered the prize for the best design of a Life-boat in 1850, they sent a model to compete for it. With much public spirit they then built, at Manchester, a full-sized boat, forty feet long, and rowing fourteen oars, and made a coasting voyage in it themselves from Liverpool to the Thames, putting into most of the intermediate ports.

The Tubular Life-boat, built by the Messrs. RICHARDSON in 1851, was afterwards sold by them to the Portuguese Government, to be stationed at the City of Oporto, off the port of which there is a very dangerous bar.

Another somewhat smaller tubular boat was, in 1856, built for the NATIONAL LIFE-BOAT INSTITUTION, and stationed at Rhyl, the boatmen at that place having applied for such a boat. She has since that time saved several wrecked crews, and has been highly reported on by those who work her. She has necessarily very great stability, and tows steadily.

Another such boat has been stationed by the Institution at New Brighton, and has done good service in saving life and property. Mr. RICHARDSON, Sen., died

many years ago ; but his son's interest in the humane work is unceasing.

Speed.—A sixth and most essential property is speed. We say most essential, since without speed, or capability of being propelled against a heavy sea and head wind, the safest boat in the world would be useless. as she could not be conveyed from the shore to a wreck, frequently against a series of breakers of the most formidable description. As in ordinary boats, propelled by oars, the greatest speed can be obtained by sharpness of bow, and, within certain limits, narrowness of beam. Here, however, the similarity ceases ; for whereas great lightness is an advantage in perfectly smooth water and calm weather, weight—as stated under the head of *Ballasting and Self-righting*—is essential in a heavy sea, and especially in a broken sea, in which the light boat will lose her way, or be beaten back by each heavy sea as it strikes her, whilst the heavier boat will be, by her own inertia, carried away through or over the seas. In a Life-boat height of bow and stern is also necessary to prevent the seas from breaking over and filling the boat ; for, if sharpness of form be preserved quite up to the gunwale, the height of end will not check a boat's way so much as will a sea breaking into and half-filling her.

Again, the greater the length of a boat in proportion to area of midship section, weight being the same, the greater will be her momentum, and the faster will she be propelled against a head sea. The proportion of four feet of length to one foot of width of midship section is that which is adopted by the NATIONAL LIFE-BOAT INSTITUTION in its double-banked rowing-boats. In its few single-banked boats, which are stationed at places where

larger and heavier boats could not be managed, still less proportional width is given.

Speed is not, however, alone essential in enabling a Life-boat to force her way through the lines of breaking seas which form an almost impassable barrier between a lee shore and a wreck. We believe that it also adds greatly to her safety ; for if she lose her way on meeting a very heavy broken sea or roller, she may not only be beaten back by it, but be thrown *end over end* or broadside to it, and be upset ; whereas if she retain her way, she can be kept bow to the sea until it has passed her, when she will again gather additional speed in readiness to meet with impunity the succeeding wave.

Stowage-room.—A seventh quality is stowage-room for passengers. It is of course desirable that a Life-boat should have as large an amount as possible of stowage-room, as she is occasionally called on to go to the aid of large vessels or to proceed to the wreck of an emigrant vessel, or other passenger ship, when it is important that she should take on board a large number of persons so as to rescue the whole in as few trips as possible. The principal object in view therefore is to distribute the air-chambers, forming the extra buoyancy of the boat, in such a manner as to occupy no more than can be helped of any space which would be available for the stowage of passengers. Life-boats vary much in this respect, and it is a requirement which has been especially studied in the Institution's boats.

Strength of build.—The eighth and last quality which we have to consider is strength. As a Life-boat is liable to be thrown heavily on a beach by the sea, or to be knocked with violence against rocks or a vessel's side, or

to come in contact with spars or broken wreck floating in the water, she of necessity must be very strongly built ; and in this respect the Society's boats will bear most favourable comparison with any others, as we have previously shown.

In connection with the last-named condition we may here state that most of the old classes of Life-boats are clinker or clench built, and of oak ; while the self-righting boats of the Institution are mostly built of mahogany, on the diagonal principle, which mode of build affords great strength and elasticity.



CHAPTER X.

THE SELF-RIGHTING LIFE-BOAT NOW IN USE ON OUR COASTS—WORKING AND SECTIONAL DRAWINGS, AND SPECIFICATIONS FOR ITS CONSTRUCTION.

THIS is somewhat of a technical chapter, but it is nevertheless one of the most important in the book, as it is very desirable that a practical boat-builder in any part of the world should be able to build a self-righting Life-boat from clear and defined instructions ; and it is hoped that by following and studying closely the accompanying plans and specifications that desirable object will be fully accomplished. Indeed Life-boats have already been built in Europe, in Australia, and in different countries of the world from similar directions.

It will be observed that the following figures show the general form, the nature of the fittings, and air-chambers of one of the modern self-righting Life-boats of the Institution, 33 ft. in length and 8 ft. in breadth. In figs. 1 and 2 the elevation and deck plans, and the general exterior form of the boat, are shown with the sheer of gunwale, length of keel, and rake of stem and stern-post.

The festooned lines in fig. 1 represent exterior life-lines attached round the entire length of the boat, to which persons in the water may cling till they can be got into the boat ; the two central lines are festooned lower than the others, to be used as stirrups, so that a person in the water, by stepping on them, may climb into the boat without assistance. This plan of Life-boat possesses in the highest degree all the qualities which it is desirable that a Life-boat should possess, and which have already been described at length in the preceding pages.

SHEER PLAN.

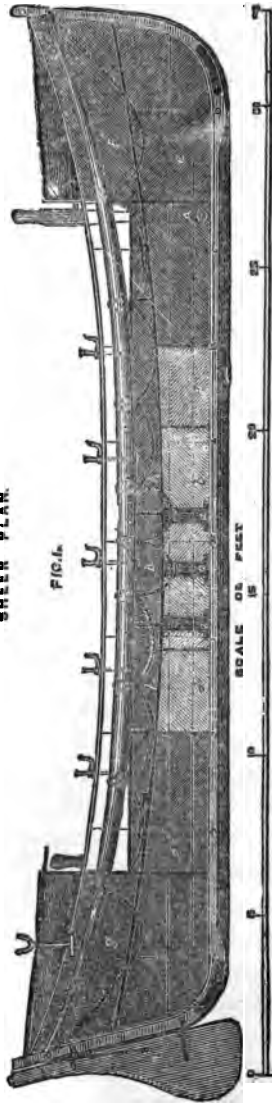
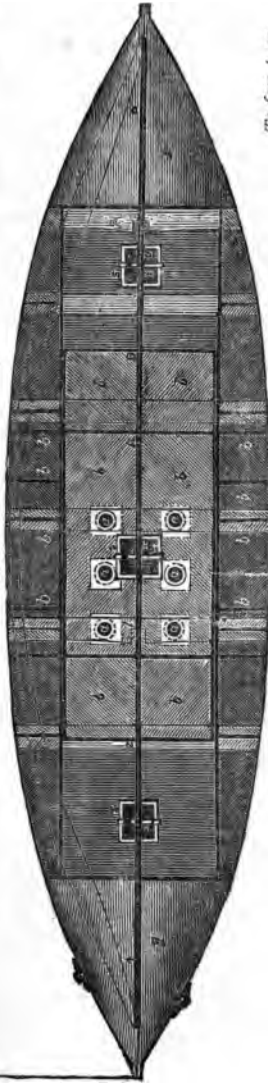


FIG. 2.



To face p. 72.

DECK PLAN

WORKING DRAWINGS OF THE LIFE-BOAT OF THE NATIONAL LIFE-BOAT INSTITUTION.

THE FOLLOWING ARE SPECIFICATIONS OF THE 33-FEET
LIFE-BOAT OF THE INSTITUTION.

PRINCIPAL DIMENSIONS.

	ft.	in.
Length extreme from fore side of stem to aft side of stern-post	33	0
Length of keel wood	29	6
Breadth extreme from out to out	8	0
„ at midship line of after thwart	7	7
„ at midship line of fore thwart	7	0
„ at end of each raised air-case	5	9
„ at one-sixth the length from either extreme	5	4
Depth amidships from under side of iron keel to upper edge of gunwale	4	0
„ of stem and stern-post	6	4
„ of keel below the rabbet wood	0	2
„ from lower edge of iron keel to upper part of flat or deck	2	1
„ from inside of skin to upper side of deck	1	6
„ from upper side of deck to upper side of thwart	1	2
„ from upper side of thwart to gunwale amidships	0	9
Sheer of gunwales	2	4
Proposed load draught of water—that is, with crew and stores on board	1	10
Displacement at load draught	4½	tons.
Proposed weight of boat when light	53	cwt.
Number of oars to pull double-banked	10	

THE MATERIALS, SCANTLING, ETC., TO BE AS FOLLOWS :—

The boat to be diagonally built, and copper fastened.

Planks, two thicknesses of bare ½-in. mahogany, as shown diagonally with painted calico between them.

Keel to be of American elm, in one piece, sided amidships 3½ in., moulded 5½ in., and at each end 3 in., scarphed to the stem and stern post.

False keel to be in one piece of cast iron 3½ in. in width by 4½ in. deep, fayed to the main keel, and bolted with screw nut-bolts of ¾ in. diameter, the nut to screw down on keelson, to be moulded as per draught. Whole weight 9 cwt.

Stems, to be in one piece of sound English oak, sided at the head 4 in., at the forefoot the size of the keel, and moulded as per draught ; to have

two holes through the forefoot, fortified on each side by an iron plate, to take a bolt or rope for hauling the boat up the beach or on to the carriage.

An iron roller $2\frac{1}{2}$ in. diameter, to receive the cable, to be let into the stem-heads between cheeks, as shown in sketch.

Stem-bands of $\frac{1}{2}$ in. iron, worked from the butt of iron keel.

Floors to be of ash or oak $2\frac{1}{2}$ in. by $1\frac{3}{4}$ in. Room and space to be 2 ft.

Gunwale to be $1\frac{3}{8}$ in. by $1\frac{3}{8}$ in., worked in one length of American elm, to be well secured, and to have holes and plates to receive thole-pins.

Fender to be $2\frac{1}{2}$ in. deep by $7\frac{1}{2}$ in. moulded, of American elm and fir, worked as shown on draught, fastened with 3-in. screws from inside.

Thwarts to be 5 in number, 2 ft. 9 in. apart, 8 in. broad, by $1\frac{1}{2}$ in. thick ; after-one to be $4\frac{1}{2}$ ft. from the after-end air-case ; fore-one 2 ft. from the fore-end air-case.

A carling 3 in. by $2\frac{1}{2}$ amidships on top of thwarts, secured with screw bolts and nuts.

Risings, under the thwarts, to be of American elm $1\frac{5}{8}$ in. by $1\frac{5}{8}$ in. ; those under the flat at the sides to be $1\frac{5}{8}$ in. by $1\frac{5}{8}$ in.

Deck to be $\frac{7}{8}$ in. thick, of well-seasoned mahogany, and well caulked.

Trunks to receive the relieving tubes to be framed of $1\frac{1}{2}$ mahogany, with arris cant in the angles, and the depth from deck to bottom of boat, and placed as shown on plan, to be secured from the outside and the thwartship bearers.

Bulkheads and bearers to be $1\frac{1}{2}$ in. thick, and placed as shown on draught, and have a limber hole $1\frac{1}{2}$ in. square, cut on each side of keelson for a water-course leading to the well.

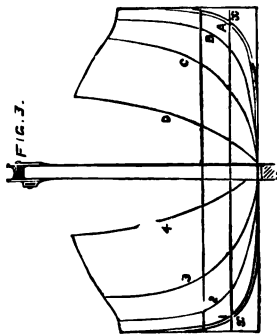
Fore-and-aft, or middle line bulkhead, to be 1 in. thick of fir, on top of keelson, and at 2 ft. 4 in. from middle line at the height of deck.

Ballast, under flat, to be of cork packed in cases covered with marine glue and calico, ironed over, filling the space beneath the deck between the bulkheads, as in sketch (b).

Delivering tubes *a*, to be 6 copper tubes of 6 in. diameter in the clear, carefully fitted into the trunks and turned on the deck, bedded in hot tallow ; the copper to be 24 ozs. to the foot and to have an inch flange on the outside of the bottom of the boat.

Self-acting valves of gun-metal, made by DARLING, 9 Queen Street, Blackfriars Road, to be let into the top of the relieving tubes, the flanges bedded in white lead and screwed down. No dirt or chips should be allowed to get into the hinges, and on this account they should not be fixed until all the other work in the boat is completed.

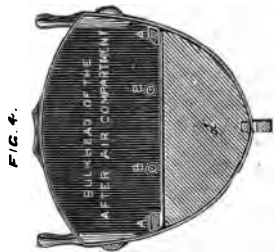
End air-cases to be framed with a $1\frac{1}{2}$ in. cant of English elm, a $\frac{3}{4}$ in. rabbet taken out to receive the board (which must be all matched, or tongued and grooved), and all faying surfaces to be well payed with white lead or thick paint ; to have two screw valves let into the cant that comes on the deck from the outside, as shown in sketch. A coat of Jeffery's marine glue is to be laid on the top of the end air-cases, and then covered with canvas, and



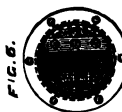
Body Plan.



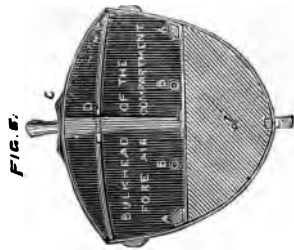
Elevation of Relieving Valve.



Section at After Bulk-head



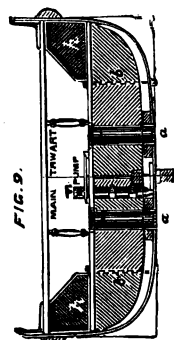
Plan of Relieving Valve.



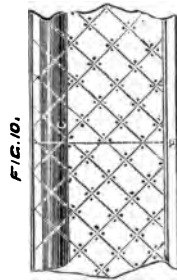
Section at Fore Bulk-head.



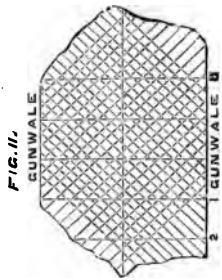
Guiding of Relieving Valve.



Midship Section.



Plank Fastenings.



Expansion of Planks.

SECTIONS OF THE LIFE-BOAT OF THE NATIONAL LIFE-BOAT INSTITUTION.

To face p. 74.

the glue to be ironed through the canvas with a hot iron ; above this a layer of cork 1 in. thick to be laid on with marine glue, to be nailed, and well rubbed down, and the pores of the cork filled with bees'-wax and varnish thoroughly rubbed in.

Side air-cases to be made of $\frac{3}{4}$ in. yellow pine, the ends to be of $\frac{1}{2}$ in. English elm, the outsides to be payed all over with marine glue, then covered with canvas, to be ironed on with hot irons. The number, length, and shape of side air-cases to be as shown in the drawing. They are to be secured in their places by cleats of wood 6 in. long, $1\frac{1}{2}$ in. square ; at the junction of each two cases screwed on to the deck by thumb-screws, so as to be readily removed when required.

Three battens of fir, $2\frac{1}{2}$ in. wide by 1 in. thick, to be carried fore and aft at each side on top of thwarts, at 4 in. from the side, with a $3\frac{1}{2}$ in. space, to protect the air-cases.

A platform-grating, for the two steersmen to stand upon, to project 2 ft. from the after-end air-case, to be 10 in. high at the outer part, and to be secured to the deck by thumb-screws, so as to unship when required. The grating to be hollowed out in the front of the valve in the end case.

Rudder as in draught, hung so as to fit close to stern-post, and lower pintle to be the length as shown ; rudder to be fitted with wooden yoke and tiller, and a tricing line to be rove through a sheeve in the stern-post, as shown in sketch.

Timber heads, of English oak $5\frac{1}{2}$ in. square, to be fitted on each quarter, as shown in the drawing.

Norman or Bollard timber for towing, or riding at anchor, to be 7 in. square, and to be fitted as per drawing.

The boats to be planked from gunwale to gunwale as far as convenient to bend the planks, as shown in sketch of expansion of plank.

Stretchers of fir, 4 in. wide, to be raised 3 in. off the deck, and fitted sloping.

Oars to be made of good sound fir or ash, 10 in number, with 5 spare oars ; to be 5 in. wide in the blades.

Boat-hook staves to be made of ash, 2 in number, and 14 ft. long.

Crutches to be formed on thole-pins of iron, 1 in. iron thole-pins, 6 in. long, to be fitted into the gunwale, and secured by a forelock ; 10 in number, with 5 spare pins.

A pillar to be placed under each thwart to give the spring, to be turned out of $1\frac{1}{2}$ in. fir.

A ringbolt in the deck forward to lash cable and anchor to.

Sweep oars of fir, 2 in number, 19 $\frac{1}{2}$ ft. long, eyebolts for life-lines, &c., to be fitted as required.

Hatch-coamings to be of $1\frac{1}{2}$ in. teak, to be raised 3 in. above the deck. The hatches to be fitted water-tight by being lined in the rabbet with fear-nought kept greased. The aperture in the hatch for the pump to be made tight in the same manner. The hatches to be each secured by an iron bar, as shown in sketch.

Pump to be fitted as shown in the section, Fig. 9 ; it is intended to relieve the boat of any water that may have leaked into the spaces beneath the deck.

NOTE.—Messrs. FORRESTT & SON, of Limehouse, London, have built altogether for the Institution and Foreign and Colonial Governments 337 Life-boats on the self-righting principle ; and Messrs. WOOLFE & SON, of Shadwell, London, 62 Life-boats of the same class.



CHAPTER XI.

MODES OF PROPELLING LIFE-BOATS—PROPOSED USE OF STEAM IN COAST LIFE-BOATS — THE BEST MODE OF UTILISING MANUAL POWER FOR THE PROPULSION OF LIFE-BOATS—PADDLES WORKED BY HAND POWER IN COVERED LIFE-BOATS—ADVANTAGES OF OARS—ROTARY PROPELLERS.

HAVING thus fully described the self-righting Life-boat of the Institution, we will consider the question as to the most advantageous mode of propelling Life-boats by manual labour; for although sails must be employed for the performance of services at very long distances, and in a few localities, where boats are stationed in harbours, steam-vessels may be available to tow them; yet as at nine stations out of every ten Life-boats have to be launched from an open, exposed, and generally flat beach through a heavy surf, and have to proceed entirely through broken water, the manual labour of their crews is the only possible mode of propelling them, and on which we shall dwell at some length, considering its great importance, in this and the two succeeding Chapters.

The question has often been asked—why are not Life-boats propelled by steam power? It is a very natural question when we consider the difficulty of rowing any boat against a strong wind, and the much greater difficulty of doing so when, in addition, the opposing force of

a heavy breaking sea, such as Life-boats alone could face, has likewise to be encountered. The question is also now the more frequently asked, since steam-power has been employed usefully in boats of much smaller size than the ordinary coast Life-boats.

It is true that the failures of our present Life-boats to reach wrecked vessels are very few compared with their numberless successes ; but even these few form a sufficient cause for serious consideration of the question, as to the probability or possibility of making steam available for Life-boat propulsion. We propose, therefore, to briefly state the difficulties that have hitherto stood, and still stand, in the way of its application.

If force alone were required there could, indeed, be no hesitation in exclusively adopting it, for so enormous is the power of steam, that the strength of man, or even of the most powerful animals, is insignificant when compared with it. Moreover, if available, steam would possess another and special advantage, in that it would do its work at comparatively small risk of human life ; whereas from ten to twenty men are required to work an ordinary Life-boat, often at the peril of their lives, steam Life-boats would be readily managed by four or five men.

Yet notwithstanding these great advantages, we fear that the difficulties in the way of propelling our coast Life-boats by the aid of steam are insurmountable. The only mode in which it can be made available is through the medium of ordinary steam-tugs, at the very few localities, such as Liverpool and Ramsgate, where there are out-lying banks and sheltered ports, from which Life-boats can be taken in tow at all times of tide, and be placed in any position to windward or leeward of a wreck which may be most convenient and safest for reaching it.

We will at once assume that screw propellers, with the

requisite machinery for working them, can be readily fitted to Life-boats, and that by such means a greater speed might be obtained against a strong wind and a moderate sea ; but the difficulties only then commence.

In the first place, a Life-boat, like the " stormy petrel," which is rarely seen when the heavens are calm and the sea smooth, has its work to do amidst broken seas, and curling surfs where no other boats can live. Except in cases of collision and foundering at sea, when the Life-boat's help can rarely be obtained, vessels are wrecked through running aground, either on outlying banks or rocks, or on the open coast ; in both such cases, in nine instances out of ten, Life-boats have to be launched from an open and exposed beach through a high surf. On such occasions, if the shore be flat, they have to be conveyed through the heavy surfs which frequently in gales of wind form one continuous mass of broken water to the distance of a mile or more from the shore. On their course, heavy seas break over them, often filling them to the level of the thwarts, from three to four tons of water frequently breaking into a Life-boat from a single wave.

It will thus be readily conceived, even by those who have never seen a Life-boat, that there would be extreme difficulty in sufficiently protecting the fires of steam Life-boats from being instantly extinguished ; whilst at the same time preserving the necessary draught of air to enable them to burn, and sufficient access to them by the engineer in charge.

Let us imagine for one moment a steam Life-boat submitted to such a test as beating for three hours over a sand-bank like the Goodwin Sands, with the sea continually breaking over her during the whole time, as will be described in a subsequent chapter. Even if

the fires were not put out by the volumes of water breaking into and over the boat, is it likely that the machinery would bear uninjured such a series of great shocks from contact with the ground, and remain in working order?

The second difficulty arises from the extremely violent motion to which such boats are often subjected, as they are sometimes thrown into almost a vertical position, when bow or stern to the sea, one end being lifted high into the air, and the other buried beneath the water's surface; whilst the lateral motion is even more violent when broadside to the waves, the men on the lee side of the boat sometimes being up to their waists in the water. Many instances have also occurred of Life-boats having been altogether upset under such circumstances.

What would happen to the steam and fires of a steam Life-boat, if upset, although, like the self-righting Life-boats of the Institution, she might remain only momentarily keel-up, we will not pretend to say, since no steam-boat of any description has ever yet passed through such an ordeal. We believe, however, that there would be the greatest risk of derangement of the machinery, and consequent disabling of a Life-boat, from the mere extent and violence of the motion to which it must frequently be submitted; and it is scarcely necessary to add, that unless such a boat were likewise provided with a full crew and full complement of oars, with room to use them advantageously, her being disabled might, under some circumstances, lead to the destruction of herself and crew.

It has also to be remembered that the average draught of water of all Life-boats, except the heavily water-ballasted boats on a portion of the Norfolk and Suffolk Coasts, is only about nineteen inches; so that the screw-

propellers would need to be of very small diameter, and would be frequently above the surface of the water altogether, and thus work at a great disadvantage when going against a heavy head-surf.

A third, and, as far as we see, insurmountable difficulty, is the fact that the only class of men that are available to work the Life-boats on the coast, viz., the fishermen and other boatmen, would be incompetent to manage a steam-engine, and to keep it in proper order. They are skilful in the use of the sail and the oar, through having them in every-day use in following their avocations ; but they know nothing of steam or steam-engines, and as at the majority of stations the Life-boats would not be sufficiently often in use for them to acquire the necessary knowledge by experience, the NATIONAL LIFE-BOAT INSTITUTION would have to seek competent trained men elsewhere. This might appear to persons unacquainted with the system of the Institution a difficulty easily to be overcome ; but it is not so, since, apart from the probability that the local boatmen would not, at many places, volunteer to work such boats, it would be necessary to maintain at each place an experienced engineer, and to pay him a sufficient salary for his maintenance ; for, unless he were to take the place of the village blacksmith, he would find no other employment in his own line of business.

The question then arises, can manual labour be applied in any more advantageous manner than by the use of oars ? In considering this question, we must, at the outset, remember that there are only two principles of propulsion applicable to vessels floating on the water's surface, viz., that obtained by the external pressure on the vessel by the wind, and that effected by a blow or pressure on the water exerted from the vessel itself,

as by the paddle, the screw, the turbine wheel, and the oar, unless we include tracking or towing a vessel through a canal, or along the bank of a river, by men or by horses.

To proceed from the land to sea, we have then only the choice of the two first-named principles. In all the modes of applying the latter of the two, whether by the paddle, screw, turbine wheel, or oar, or by any other that can be devised, the water is used as a fulcrum, and the mechanical law of action and reaction is the source of motion, the reactionary force from the blow or pressure giving, what is in reality a backward motion to the vessel, just as the rebound of a ball from a wall or other plane surface is a backward motion caused by a force imparted to it in an opposite direction.

In exerting that force of any given amount such as the strength of ten powerful men, all we can do is to enable them to apply it in the most efficient manner, and with as small an amount of loss from friction as possible.

Although one of the most ancient, if not the most ancient, instrument of hand propulsion, an oar is still the simplest and the most effectual, and we doubt if it will ever be superseded.

Life-boats have been designed with a cover or roof over them, the boats being propelled by paddles worked by hand-power. Even if it could be shown that such a boat was safer than an open one, we think it very questionable if the men who work them would consent to be shut up under cover, with no opportunity of seeing and judging for themselves of their whereabouts, and of the extent of any danger that they might be called on to encounter. Just as most persons are, naturally, more apprehensive of danger in the dark, when it may be in-

visible, although close at hand ; so, when their boat was thrown nearly perpendicular by a heavy broken wave throwing up the bow or stern, or nearly rolled over by a broadside surf, a Life-boat's crew might imagine that the next moment they might be dashed to pieces on a rock, or that they might be hopelessly drifting into a fatal position from which they could never extricate themselves. There would probably also be often great difficulty in getting a wrecked crew safely on board, through a small open hatch in the roof-deck of the boat.

We have dwelt thus far on the peculiarity of roof-covering, since it is a general accompaniment of plans for propelling Life-boats by paddles or screws. Taking all these facts into consideration, we think it will be sufficient to enumerate the special advantages of an oar, to show that any other hand-propeller entering the list to contend with it will meet with a very formidable competitor.

I. "*Oars.*"—The peculiar advantages of oars are as follows: 1st. They are constantly in the hands of our coast boatmen as well as of the crews of ships ; and their management is therefore not only thoroughly and practically understood, but every muscle of the body which has to be brought into play is strengthened by its daily use, which advantages are undoubtedly of the very highest importance.

2nd. The friction in working them is very slight when they are properly fitted.

3rd. In the hands of practised rowers they can be accommodated to the motion of the sea, so that they can always be used at full power.

4th. If broken, they can be readily replaced, spare ones being kept on board.

5th. From their oblique stroke, on first immersion, the

oars towards the bow and stern can be used with much effect in keeping a boat's head up to the sea, and in turning her round, when required, in a short space. This also is a most important advantage.

On the other hand, their disadvantages are :—

1st. That the force which has to be used to make the back stroke, and place the oar again in position, is a direct loss, allied with which is the loss of momentum consequent on the motion being backwards and forwards instead of being continuous.

2nd. When out of the water they must hold more or less wind, which is a disadvantage when rowing against a fresh gale.

II. "*Rotary Propellers.*"—Their chief if not only advantage would be, that the motion being continuous the whole of the force exerted is in one direction, round an axis, and that by the aid of a weighted or fly-wheel they may be made to retain their momentum, which would assist to carry them over any momentary extra resistance : as, for instance, that of the blow of a heavy sea, and over those parts of their circuit when the men working them could not employ their strength to advantage. Their disadvantages are : 1st. That the men who would be alone available to manage them would be unaccustomed to the work of turning the handle of a winch, and would not use their strength so advantageously as in rowing with an oar ; whilst, if they exerted themselves continuously, round the whole circle, the labour would be very exhausting, and they would soon succumb from fatigue, especially as they would be working in a confined atmosphere and in a covered boat.

2nd. They would be powerless to keep a boat's head up to the sea when both wind and sea were very high, and on one bow.

3rd. The friction in working them would probably be greater than that of an oar.

4th. If the shaft of the screw or any other part of the machinery should get broken or out of order the boat would lie at the mercy of the wind and waves.

5th. In the case of paddles they would work at great disadvantage, consequent on the violent motion of the boat from side to side; since the paddle on one side would often be spinning round in the air, whilst the other would be too deeply immersed. A screw would likewise be frequently out of the water, from the pitching or longitudinal motion of the boat.

As these several propositions are almost self-evident, it is unnecessary to dwell on them at further length.



CHAPTER XII.

QUALITIES REQUIRED IN OARS FOR LIFE-BOATS—LIGHTNESS, STIFFNESS, STRENGTH, LENGTH—HEIGHT OF ROWLOCKS—DRAWINGS AND DESCRIPTION OF SWIVEL ROWING CRUTCHES USED IN THE LIFE-BOATS OF THE INSTITUTION—SQUARE-LOOMED OARS.

AS a Life-boat has, in the majority of cases, to be propelled by oars, and as, in order to rescue a shipwrecked crew, she has generally to be rowed to windward against a heavy sea and strong wind, it follows that too much care cannot be taken to place in the hands of her crew the most efficient instrument for the performance of their laborious and perilous work.

There are three valuable properties to be considered in oars for Life-boats, viz., lightness, stiffness, and strength; and if all three were of equal value there would be no difficulty in arriving at a decisive conclusion as to the fittest description of wood for a Life-boat's oars, after testing a sufficient number of each sort. The question is not, however, quite so simple, and must after all remain a matter of opinion to some extent, as the above-named properties have different values, and even all practical rowers may not agree as to the relative value of each. We will remark on the three above-stated properties in succession.

1. *Lightness.*—It is of the utmost importance that a Life-boat's oar should be as light as possible, consistent

with strength ; for, however well-balanced an oar may be, a greater effort must be required to move a heavy than a light one, and, in proportion, the sooner will a person become fatigued in rowing with the one than with the other ; and, as a Life-boat man will frequently have to make many hundred, and sometimes several thousand strokes with his oar before he gains his object, three or four pounds extra weight, like the last pound on the camel's back, may cause him to break down altogether. Since, therefore, an oar being heavy or light may make the difference of a rower retaining his strength of arm or not, and of reaching a wrecked vessel or not, too much attention cannot be paid to secure the greatest possible lightness, in conjunction with adequate strength.

As the only suitable woods for the making of oars are different species of fir and ash, and as all fir woods are lighter than ash, it follows that, in this respect, fir oars are to be preferred for Life-boat service.

2. *Stiffness*.—A stiff oar is considered to be more manageable in a rough sea than a pliant one, although in smooth water many men prefer rowing with pliant oars, especially those who have been accustomed to their use.

It is commonly supposed that there is a loss of power in rowing with a pliant oar, a certain portion of the force applied being expended in bending the oar. Such, however, is only to a slight extent the case, as no force once exerted can be absolutely lost ; and the oar itself, in its effort to recover its normal condition of straightness before being withdrawn from the water, will continue the force first imparted to it after it has ceased to be made, in the same manner that a spring-board, in recovering its straight direction, enables a person to jump to a higher altitude or farther distance than he otherwise

could ; the oar, in fact, merely acting as a medium for applying the force in an unequal and more prolonged manner. A slight degree of pliancy in an oar is probably, therefore, not a disadvantage, although much pliancy would be.

3. *Strength.*—It will no doubt be supposed by most persons that an oar cannot be too strong, and that, therefore, great strength is the most important element in a Life-boat's oar. Up to a certain amount of strength, such is the case, and every oar in a Life-boat should be so strong that the most powerful man could not break it in rowing ; but beyond that amount, independently of unnecessary strength involving greater weight, it becomes a question whether additional strength may not be a positive, and possibly a serious, disadvantage, even to the extent of endangering the safety of a boat.

The most frequent cause of the breaking of oars in a Life-boat is her being struck by a broadside surf, when the lee gunwale being forced under water, the men on that side cannot raise the blades of their oars sufficiently high to prevent their becoming immersed : in that case the pressure of the water on the blades, as the boat is being carried, broadside on, at the rate of several miles an hour, before the sea, is so great that the oars are forced from the rowers' hands, and retained in a nearly upright position, with the blades several feet below the bottom of the boat. If the boat be in shallow water, they then come in contact with the ground, and are instantly broken, whilst, if in deeper water, they also often break ; and if from their great strength they were not to break, the strain on them is then often so great that they would wrench the thole-pins out of their sockets, and break the gunwale of the boat ; or, if the latter were too strong to give way, the risk of the boat upsetting would

be much increased, as the pressure of the still water on the blades of the oars beneath the boat, and that of the crest of the sea on her upper side in the opposite direction, would powerfully tend to upset the boat.

In selecting the most suitable description of oar for a Life-boat, we have then to decide on a maximum of desirable strength, and on a limited flexibility or pliancy, and to select the lightest description of wood that possesses those properties.

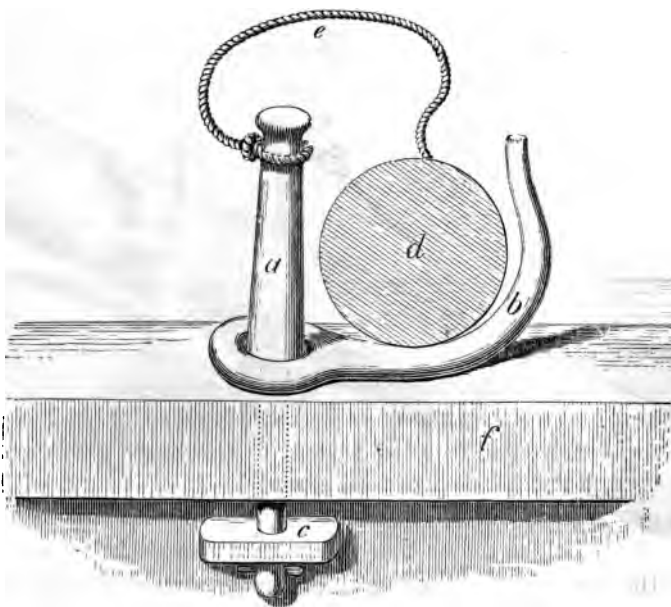
An oar is a simple lever, of what is termed the second order, that is, wherein the weight or body to be moved lies between the fulcrum and the motive power; the water being the fulcrum of the lever, the gunwale of the boat the point at which its power is applied to the moving body or weight, and the rower's arms being the source of power.

The length of an oar must of course be proportional to the width of the boat, and it should be so poised on the gunwale that the rower can raise or depress it or move it in any direction with the smallest effort. An oar should be not less than five inches wide in the blade, or it will expose so small a surface to the water as to cut through it, and so work on a too yielding fulcrum, with comparative loss of power.

The height above the thwarts, of the thole or rowlock in which the oar works on the gunwale, should be sufficient to enable the rower to lift the blade well above the waves by depressing the loom or handle; but, on the other hand, it must not be so high as to require him to raise his arms above the level of his chest in rowing, in which case he will row with much less force, and be much sooner fatigued. A height of eight inches from the thwarts to the oar on the gunwale will be found a suitable average.

Lastly, the mode of confining the oar to the gunwale of the boat is of much consequence. The most common modes, in ordinary boats, are rowlocks and double pins, between which the oar works ; but as an oar is liable to jamb in the rowlock when rowing in a rough sea, and thereby to get broken, or to damage the gunwale, the

Fig. 1.

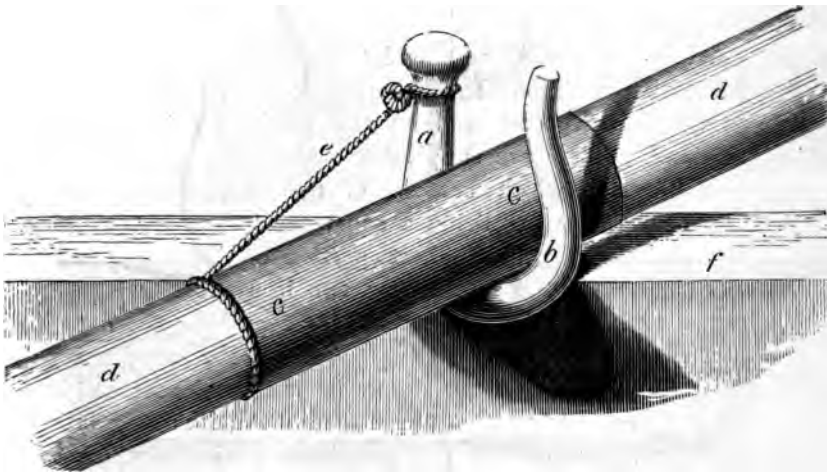


oars of Life-boats have generally been worked in a rope grummet or ring, over a single iron thole-pin : a further advantage of this plan is, that it enables the oars to lie along the outside of the boat when not in use, and thus saves the necessity of unshipping them and getting them in-board on going alongside a wreck, which is a great advantage.

A description of swivel-crutch, intended as a substitute for a grummet, was planned for the National Institution's Life-boats, by its Inspector, which is found to have the advantages of the grummet, and to be more convenient in some respects. We subjoin a sketch of it.

Fig. 1 represents the inside of a boat's gunwale, with a section of the oar within the crutch, the latter supported on the gunwale in the position in which it remains whilst

Fig. 2.



the oar is in use. *a*, is an ordinary iron thole-pin ; *b*, the crutch, also of galvanised iron, which revolves round the thole as an axis ; *c*, a clamp or chock, which receives the lower end of the thole ; *d*, a section of the oar ; *e*, a short lanyard with a running eye, which is slipped over the head of the thole whenever the oar is required to hang over the side ; *f*, the gunwale.

Fig. 2 shows the oar when let go by the rower and allowed to hang alongside outside the gunwale. *a*, the

thole; *b*, the crutch; *c*, the leathering on the oar, to prevent chafe; *d*, the oar, as hung alongside; *e*, the laniard spliced round the oar, below the leathering, and nailed on to prevent its slipping round or along the oar; *f*, the gunwale.

The principal advantage of the swivel-crutches over grummets is, that they are of a more durable character, are fixtures, and not so liable to be mislaid or lost, and retain always the same size and shape, whereas a grummet is liable to stretch by use, when the oar will work too loosely in it.

The oars supplied in general to the Life-boats of the Institution are made round loomed, except a few boats on the Scotch coast and on the north-east coast of England. They are supplied with the square loomed or coble oar, which consists of two separate parts, the loom of the oar being a square or flat-sided piece, and the blade, with a short portion of the loom, is usually joined to the other by two iron slides, which secure and hold the two parts firmly together; the flat part of the loom rests on the gunwale of the boat, and in that position will not admit of being "feathered" similarly to an oar with a round loom. An iron ring is firmly attached to the oar at its proper equipoise which fits over a single iron pin or thole; so that there is no danger of the oar going adrift, although left suspended over the side of the boat; and they may also be turned either towards the stem or stern of the boat without being unshipped.



CHAPTER XIII.

LIFE-BOAT TRANSPORTING AND LAUNCHING CARRIAGE — MODE OF LAUNCHING A LIFE-BOAT FROM ITS CARRIAGE — HAULING OFF WARPS AND ANCHORS—LAUNCHING “SETS”—DRAWINGS AND DESCRIPTION OF THE CARRIAGE—SPECIFICATION OF MATERIAL AND DIMENSIONS OF SAME—DRAWINGS AND DESCRIPTION OF ROLLER SKID AND TURNABLE—DRAWINGS OF IMPROVED ROLLER FOR CARRIAGES AND SKIDS.

A MOST important adjunct to the Life-boat is a *Carriage*. It is not sufficient that the boat herself be of a superior description, capable of contending safely and successfully with that element in which her work has to be performed, that she shall be able to reach the shipwrecked crew despite the fury of the wind and waves, and bear them securely through the dreaded breakers, which often oppose an insurmountable barrier between them and the envied shore. It is not sufficient that she be well furnished in all respects, and manned by an experienced and courageous crew; but it is necessary that she be also supplied with means for transportation on the land, for wrecks may occur at a distance of several miles from the spot where she is stationary, yet close to the shore. In such cases it is usually much safer and more expeditious for the Life-boat to be conveyed by land to that part of the shore contiguous to the wreck, than for her to be rowed or sailed, broadside to the sea, through, perhaps, several

miles of broken water. Again, at many places the shore is very flat; and should a wreck occur at low water, although abreast of the Life-boat Station, she might have to be conveyed a quarter of a mile or more over the ground before she could be floated, which could then only be accomplished at the expense of much labour and loss of valuable time, unless she were placed on a wheeled carriage.

At an early period the attention of the Institution was turned to the improvement of its Life-boat Carriages, and no pains or expense were spared to make them as efficient as possible, not only for transport, but as a means of launching a Life-boat safely, quickly, and effectually. The subject was warmly taken up by the late Colonel J. NISBETT COLQUHOUN, R.A., F.R.S., Director of the Carriage Department at the Royal Arsenal, Woolwich, justly celebrated as one of the most able officers of his day, whom the Author is proud to remember as one of his earliest and most attached friends.

Colonel COLQUHOUN became Chairman of the Institution's Carriage, House, and Rocket Sub-Committee; and in 1852 he caused to be built in the Royal Arsenal, from his own designs, a Carriage which was supplied to four stations, and then abandoned by the Committee, as a permanent pattern, on account of its costliness and weight. It however became the acknowledged pattern, of which all subsequent ones were more or less modifications.

On the decease of Colonel COLQUHOUN, his successor at the Royal Arsenal, Lieut.-Colonel A. T. TULLOH, R.A., also turned his attention to the subject, and, with his assistance, and that of Messrs. RANSOME & SIMS, of Ipswich, a Carriage on a modified plan was produced.

It was much cheaper and lighter, but after some extensive trials of four Carriages of that class on the coast, it was also found that it was not sufficiently simple in its arrangements for the crews of Life-boats to handle it successfully.

The Committee then requested their Inspector of Life-boats to carry out a series of investigations, round the entire coast, and draw up a Report to them embodying the results of the observations of different persons experienced in the use of the various kinds of Life-boat Transporting Carriages then in use, together with his own opinion of the best way of meeting the necessities of the case.

As the result of those investigations, Captain WARD placed before the Committee designs for a carriage, which he considered would meet the various conditions required in a Life-boat Carriage, as far as was practicable. His plan was approved by the Committee; and the carriage then built became the model on which the Institution has continued to build to the present time.

Accordingly we find that each of the Institution's Life-boats, except a few of the larger size, is provided with a Carriage, on which she is kept in the Boat House ready for immediate transportation to the most favourable position for launching to a wreck. Thus the Life-boat is made available for a greater extent of coast than she otherwise would be, and even when launched from abreast of the Boat House can be much more quickly conveyed to the water's edge than she could be if not on a carriage. In addition to this ordinary use, a Carriage is of immense service in launching a boat from a beach without her keel touching the ground; so much so, indeed, that one can be readily launched from a Carriage through a high surf, when without one she could not

be got off the beach. An explanation of the manner in which this service is performed will be readily understood.

The Life-boat is drawn to the water's edge, where the Carriage is turned round, so that its rear end, from which the boat is launched, shall face to seaward. The crew then take their seats in the boat, each rower in his place, with his oar over the side ready to pull, and the coxswain at the helm, or with steering-oar in hand. The Carriage is then backed by men or horses or both sufficiently far into the water to ensure the boat being afloat when she is run off the carriage, or if the ground be very soft, or sufficient help unattainable, the Carriage is first backed into the water before the crew get into the boat. Self-detaching ropes, termed launching ropes, previously hooked to each side of the boat's sternpost, and rove through sheaves at the rear end of the carriage, are then led up the beach, and manned either by assistants, or have one or more horses attached to them.

When all is ready, the coxswain, watching a favourable moment, gives the word, and the boat, the keel of which rests on small iron rollers, is run off rapidly into the water, with her bow facing the surf. The oarsmen then give way, even before her stern has left the carriage, and she is at once under command, ere the sea has time to throw her back broadside to the shore, which is usually the effect of attempting to launch through a surf from an open beach without a Carriage, unless a hauling-off warp attached to an anchor be permanently laid down outside the surf. This latter plan is only available in a few localities where there is a comparatively steep beach.

At most of such localities, however, a larger class of Life-boat is stationed, which boats are unprovided with carriages, and at which places permanent warps, either



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THE LIFE-BOAT ON ITS TRANSPORTING-CARRIAGE.

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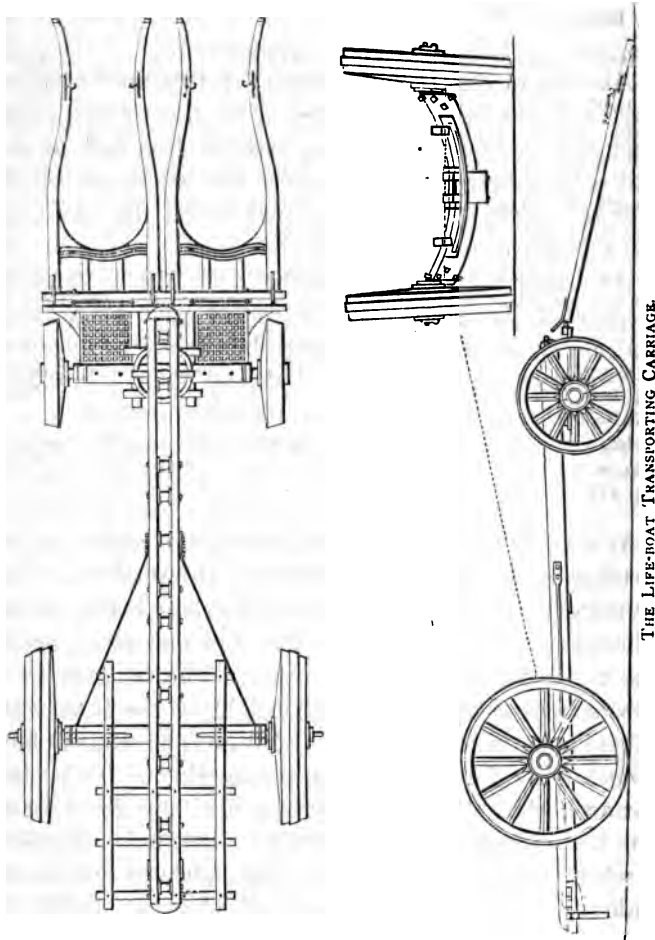
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double or single, are provided, the former being rove through a block attached to a buoy, moored at a sufficient distance from the shore, and the latter attached to an anchor. These warps are kept out through the winter months, and taken in during the summer.

Another mode of giving a boat this first necessary impetus is by means of either one or two long poles, called "sets," from 35 to 50 ft. long, with an iron fork at one end, which being placed against the sternpost of the boat or near it, and pushed by persons on the shore, are often very effective.

By one or other of these methods the Life-boats of the NATIONAL LIFE-BOAT INSTITUTION have been safely and effectually launched during the twenty-two years of their existence ; whilst the occasions of their failure have been so rare as hardly to be worth consideration.

The annexed is a drawing of the Life-boat Transporting Carriage of the Institution. It consists of a fore and main body ; the latter is formed of a keelway, and of side or bilgeways attached to the keelway, and resting on the main axle, the boat's weight being entirely on the rollers of the keelway. Its leading characteristic is that on the withdrawal of a forelock pin, the fore and main bodies can be detached from each other. The advantages of this arrangement are that the weight of the boat when she is launched from the rear end forms an inclined plane, by elevating the keelway and fore-carriage. To replace her on the carriage she can be hauled bow foremost up the fore end or longer incline, by disconnecting the fore-carriage, and letting the end of the keelway rest on the ground, thus forming an inclined plane up which the boat is easily drawn. The bilgeways are needed at the rear end, that the boat may be launched in an upright position, with her crew on board, but they are not required at the fore end of the carriage.



SPECIFICATION OF MATERIAL, AND DIMENSIONS, OF A
TRANSPORTING CARRIAGE FOR THE 33-FEET LIFE-
BOAT.

HIND CARRIAGE.—Bed of oak, 8 in. wide, $7\frac{1}{2}$ in. deep, and plated with iron $\frac{3}{8}$ in. thick by 6 in. wide on each side, and $\frac{1}{2}$ in. by 6 in. wide on top. Keelways of oak, 22 ft. 6 in. long, 3 in. wide, $8\frac{1}{2}$ in. deep, and plated outside with iron $\frac{3}{8}$ in. thick by 6 in. wide, and fitted with 11 improved drop rollers. Cross-pieces of ash, $3\frac{1}{2}$ in. wide, 3 in. deep, made circular, as per sketch, and plated with half-round iron, $1\frac{3}{8}$ in. wide by $\frac{1}{2}$ in. thick, or of angle irons of the same form. Bilge bearing pieces of oak, 10 ft. long, 3 in. wide, $4\frac{1}{2}$ in. deep. Wheels, 7 ft. high; felloes of elm, 9 in. wide, 4 in. deep; spokes of oak, 2 in. on the face, $4\frac{1}{2}$ in. wide; stock of elm, 1 ft. 2 in. long, 1 ft. 5 in. diameter; tires-centre, $\frac{5}{8}$ in. by 4 in.; front, $\frac{3}{8}$ in. by 2 in.; and hind, $\frac{3}{8}$ in. by $2\frac{1}{2}$ in. wide.

FORE CARRIAGE.—Splinter bar of ash, 7 ft. 2 in. long, $3\frac{1}{2}$ in. wide, 3 in. deep. Bed of English oak, 6 in. wide, 7 in. deep. Futchells of ash, 3 in. wide, 3 in. deep. Shafts of ash, $3\frac{1}{2}$ in. wide at the bar, 3 in. deep, plated with iron, No. 10 guage, by 2 in. deep. Bars of ash, front, 3 in. deep, $2\frac{3}{4}$ in. wide; hind, 3 in. deep, $2\frac{1}{2}$ in. wide. Wheels, 4 ft. 2 in. high: stock of elm, $12\frac{1}{2}$ in. long, 12 in. diameter; spokes of oak, $2\frac{1}{2}$ in. on the face, $3\frac{1}{2}$ in. wide; felloes of elm, 9 in. wide, $3\frac{3}{4}$ in. deep; tires-centre, $\frac{5}{8}$ in. thick, 3 in. wide; front, $\frac{3}{8}$ in. thick, $2\frac{1}{2}$ in. wide; hind, $\frac{3}{8}$ in. thick, 3 in. wide.*

As the hauling up of a heavy boat is a laborious work, portable Roller Skids are supplied to the stations of the NATIONAL LIFE-BOAT INSTITUTION, and are found valuable auxiliaries in hauling up its boats, saving much labour, trouble, and expense. Indeed on account of the great weight of Life-boats, varying as they do from 2 to $4\frac{1}{2}$ tons, it would be impossible to haul them over the ground, or on to their Carriages, without some such contrivances, whilst the process of rapidly launching them from their Carriages into the water also much depends on whether the rollers on which they run turn freely and readily.

Fig. 1 is a sketch of the Roller Skid. There is also

* Messrs. ROBINSON & NAPTON, of Limehouse, London, are the present builders of the Institution's Transporting Life-boat Carriages.

supplied to each boat a skid (fig. 2) capable of revolving on a pivot, fixed in a lower platform. These turn-table skids are used for turning the boat in any direction, or completely round.

Recently an improvement has been effected in the

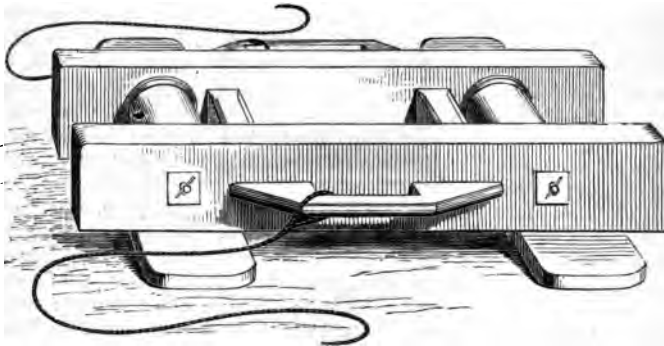


Fig. 1.

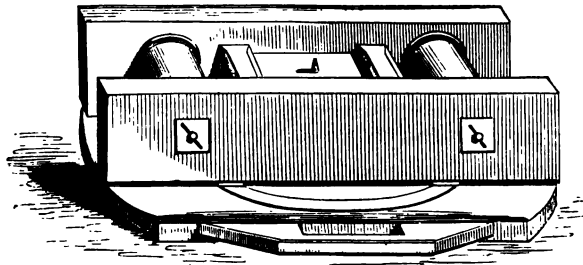


Fig. 2.

formation of the roller, and the newly-designed one is found from its great simplicity, and the ease with which it can be removed for examination and lubrication, to be very suitable to Life-boat work. The following illustrations will serve to show the character of this roller.

Fig. 3 represents the roller, which is cast solid, with two projecting axle-arms, on which it revolves.

Fig. 4 shows a portion of the inner face of one of the wooden side-pieces forming the frame of a portable skid, or of the keelway of a carriage. In this frame, on

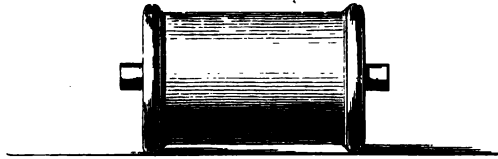


Fig. 3.

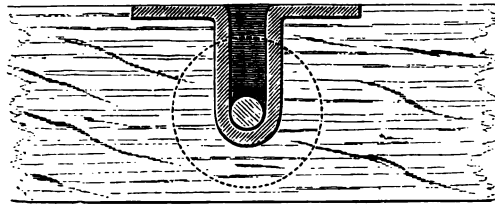


Fig. 4.

either side, is sunk a groove, or slot, which when lined with a letter U-shaped iron lining of sufficient strength, corresponds in width and depth with the diameter and length of the axle-arms on the roller, the bottom of the groove acting as a bed or matrix in which the corresponding axle-arm revolves.

CHAPTER XIV.

THE CORK LIFE-BELT USED BY LIFE-BOAT MEN—DRAWING AND DESCRIPTION OF SAME—REQUISITE QUALITIES IN SUCH A LIFE-BELT—FLUID COMPASS USED IN LIFE-BOATS—THE REST OF THE EQUIPMENT OF STORES FOR LIFE-BOATS—THE LIFE-BOAT HOUSE—EXPENSE OF A LIFE-BOAT ESTABLISHMENT.

THERE is another article which is of the utmost importance to the efficient and safe manning of the Life-boat, and that is the Life-belt. Each coxswain is held responsible that every man who goes into his Life-boat, whether on service or exercise, shall have on a Life-belt.

One of the causes of the great loss of life which attended most Life-boat accidents in former times, independently of the boats not possessing the self-righting property, was undoubtedly that their crews were not provided with efficient life-belts.

The cases of accident already referred to under the head of *Self-righting*, are equally illustrative of the value of good life-belts, for in each case the men were supported by their belts, which were of the greatest service to them ; for it must be remembered that the majority of our coast boatmen cannot swim, and that even the best swimmers often forfeit their lives, when upset in heavy surfs, through *losing* their presence of mind. Many cases could be

cited, but none more conclusive than that of the Southwold boat before referred to, when three gentlemen without belts were drowned, although one of them was known to be a good swimmer; whilst fifteen men who had on life-belts, several of whom not being able to swim, were all saved.



Captain WARD, in 1854, designed the Cork Life-belt, which has been since that period adopted by the Institution and many Foreign Life-boat Societies. He observes that the requisite qualities of a Life-boatman's Life-belt should be—

1. Sufficient extra buoyancy to support a man heavily

clothed, with his head and shoulders above the water, or to enable him to support another person besides himself.

2. Perfect flexibility, so as to readily conform to the shape of the wearer.

3. A division into two zones, an upper and lower, so that between the two it may be secured tightly round the waist; for in no other manner can it be confined sufficiently close and secure round the body without such pressure over the chest and ribs as to materially affect the free action of the lungs, impede the muscular movement of the chest and arms, and thereby diminish the power of endurance of fatigue, which, in rowing-boats, is a matter of vital importance.

4. Strength, durability, and non-liability to injury.

The Cork Life-belts of the NATIONAL LIFE-BOAT INSTITUTION possess the first two qualities in a greater degree than any other Life-belt, and the third one exclusively. As shown in the annexed illustration, they are tied round the waist by strings and secured by other strings, passing like braces over the shoulders. It is of great importance that the Life-boat man should tie his Life-belt securely round him, since its efficiency, and as a consequence his own life, may depend on his care.

To ensure this object it is indispensable—

1st. That the upper back strings of the belts should be drawn tightly over the shoulders, after being crossed behind, and be tied carefully and tightly to the front strings on the chest, so as to make it impossible for the belt to drop down over the hips, where it would rather help to drown the wearer than be the means of saving him.

2nd. That the waist strings should be drawn tightly round the body, between the two rows of cork, and then

tightly and carefully tied in front ; since, unless so tied, the sea, getting under it, may have sufficient force to break the strings, and as when kept closely in contact with the person of the wearer, the warmth of his body will be much longer retained, cork being a bad conductor of heat.

The coxswains of the Life-boats are therefore instructed to be most careful in seeing that the Life-belts under their care are always in good condition, that their strings especially are strong, and on every occasion of going afloat in the Life-boat, that each of her crew has his belt properly and securely tied before getting into the boat.

The extra buoyancy of this belt is equal to 25 lbs. It will fully support an ordinary man with his clothes on, with the shoulders and chest above the water. The most buoyant of the old descriptions of cork belt (CARTE'S) had extra buoyancy equivalent to about 14 lbs., and some not more than 7 or 8 lbs. The largest size of the ordinary inflated belts has buoyancy equal to 20 lbs. when completely inflated ; some not more than 8 or 10 lbs.

The defects of all inflated air-belts are, their liability to puncture, want of strength, want of flexibility if more than half inflated, difficulty of inflation in very cold weather, and the liability of their inflating-valves to get out of order by corrosion from the effects of salt-water.

Another important feature in the equipment of those Life-boats which may be called on at night to proceed to long distances from the shore is the Compass. The subject of the Mariner's Compass has for many years past been considered a most important one, and has had great attention bestowed on it, especially since the introduction of iron as a material for building ships.

The principles of construction of Compasses for boats are the same as of those for ships; but, on account of the more violent motion of a boat in a rough sea, it is necessary to provide some mode of steadying the face-card to which the needle is attached, in addition to the ordinary "gimbals" on which Ships' Compasses are balanced. For such compasses in boats and small vessels, subjected to the motion of a rough sea, are so perpetually in motion, spinning round and round, as to be then altogether useless. It is evident, therefore, that they are not appropriate to Life-boats, whose work always lies amongst heavy seas.

To remedy this evil, the late Mr. F. DENT, the chronometer-maker, Strand, London, devised the particular description of Compass known as "Dent's Fluid Compass," the improvement consisting in the card and needle being immersed in a fluid enclosed in a hermetically-closed bowl. This plan was found to answer the purpose admirably, and these compasses are now in general use in the Royal Navy, and to some extent in the mercantile marine.

The annexed diagram and explanation will make sufficiently clear to the general reader the character of a Fluid Compass as manufactured by Messrs. E. DENT & CO., the successors to Mr. F. DENT.

An admirable modification of DENT'S Fluid Compass and Binnacle was especially designed for and under the superintendence of the ROYAL NATIONAL LIFE-BOAT INSTITUTION.

This Compass and Binnacle is shown in the accompanying illustration, which will speak for itself almost without description.

The only modification in the Compass is the reduction of the size of the card, which is only three inches in

Fig. 1.

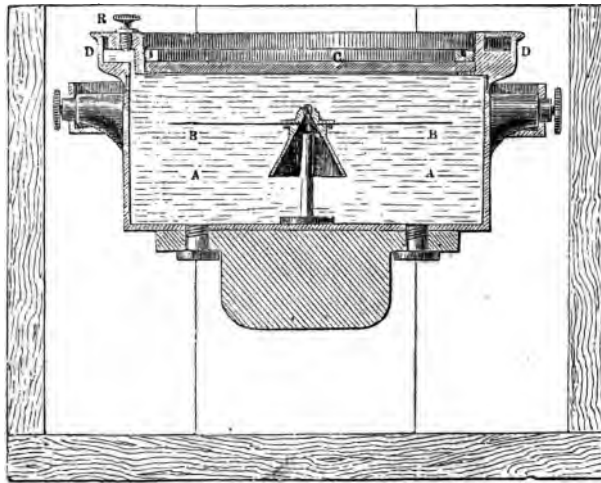


Fig. 2.

Figures 1 and 2 are vertical sections; Fig. 1 of the Fountain Reservoir, and Fig. 2 of the Bowl when filled. The same letters refer to similar parts in each figure. A is the bowl filled with dilute alcohol, or other suitable liquid; B is the card with the magnetic needle attached to it, and turning on a central point or pivot; C is the glass top of the bowl; D is the annular fountain reservoir. This reservoir has a nozzle or filling hole, closed by a screw, R, below which, at E, is a hole, forming a communication with the bowl, A.

To fill the bowl, the screw R is taken out, and a small funnel inserted, through which the liquid is poured in (the air passing out at the same time by the side of the funnel), until the bowl A is full. The liquid is then poured in until it nearly fills the reservoir D; the screw R is then screwed in, and the whole is thus tightly closed up. The elasticity of the air remaining in the reservoir allows for the contraction and expansion of the liquid; and if any liquid escapes by evaporation from the screws not being absolutely air-tight, its place is supplied by liquid from the fountain reservoir D.

If by any chance a bubble of air should find admission to the bowl A, it passes up into the reservoir D, either spontaneously or by slightly inclining the bowl to allow of its escape, which it does instantly. The fluid is composed of one-third spirits of wine and two-thirds pure water. In high latitudes more spirits may be used if there is any danger of its freezing.

diameter. The binnacle is made of copper, japanned ; it is scarcely more than six inches square and eight inches high, yet works on double gimbals ; it is only $5\frac{3}{4}$ lbs. in weight yet is provided with a lamp and reflector, and with a drawer to contain spare wicks and matches, being therefore so portable as to be readily held in the hand. It has been found, in the Life-boats of the Institution, to answer admirably in every respect.



DENT'S FLUID LIFE-BOAT COMPASS.

The remainder of the equipment of a Life-boat is detailed in the accompanying list :—

LIST OF THE EQUIPMENT OF STORES SUPPLIED TO AND USED IN FITTING UP THE 33-FEET LIFE-BOAT OF THE INSTITUTION.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Oars—one set and a half, and 2 Sweeps. 2. Two Boat-hooks. 3. Two Masts and Yards. 4. One set, and a half set of Iron Swivel Crutches and Steering Crutches. 5. Two Valve-wrenches. 6. Cable, 60 fathoms ($3\frac{1}{2}$-inch Manilla). 7. Haul-up Hook with Rope, 20 fathoms (3-inch ditto). 8. Rope for Tail-block, Tackle-blocks, and Securing-pennants, 10 fathoms (3-inch Hemp). 9. Inside Life-lines, Rudder-gear, &c., 25 fathoms ($1\frac{1}{2}$-inch Manilla). 10. Two small Veering-lines, 30 fathoms each ($1\frac{1}{2}$-inch ditto). 11. Cork Float-lines, 20 fathoms ($1\frac{1}{2}$-inch ditto). 12. Bow-securing Rope, 5 fathoms (3-inch ditto). 13. Two Tackles, 20 fathoms each ($2\frac{1}{2}$-inch ditto). 14. Slings, to be converted into two Drag-ropes, 30 fathoms ($3\frac{1}{2}$-inch ditto). 15. Ties and Shrouds, 12 fathoms (2-inch ditto). 16. Halliards and Sheets, 45 fathoms ($1\frac{1}{2}$-inch ditto). 17. Lead-line ($\frac{1}{2}$ log line). 18. Oar-lanyards, &c., Hamboro' line, 9-thread and 6-thread, 1 skein of each. 19. House-line, 2 skeins; Twine, 1 Skein; Yarn, 1 ball. 20. Bow Heaving-line, 20 fathoms (2-inch Italian hemp). | <ol style="list-style-type: none"> 21. Stern ditto, 20 fathoms (2-inch ditto). 22. Outside Life-lines, 24 fathoms ($1\frac{1}{2}$-inch ditto). 23. Drogue-line, 15 fathoms (3-inch Italian hemp). 24. Loaded Cane and Line, 25 fathoms, and Tub for same. 25. One Life-buoy. 26. Cork Life-belts, one for each of the crew, and three spare. 27. Sails. 28. Drogue. 29. Cleaning Gear. 30. Boat Cover } When necessary. 31. Flag } 32. Anchor, 60 to 75 lbs. 33. Stern Grapnel, 25 lbs. 34. Two Heaving Grapnels, 5 lbs.; 1 ditto, 3 lbs. 35. Axe and Two Hatchets. 36. Boat Lantern and Bucket. 37. House Lantern. 38. Tool-chest, equipped. 39. Screw-jack. 40. Hand Lead. 41. Chains for Drag-ropes. 42. Speaking Trumpet. 43. Compass } When necessary. 44. Telescope } 45. Roller-skids and Turn-table. 46. Hauling-off Warp } 47. Hauling-up Tackle } 48. Ditto Pennants } 49. Winch } 50. Carronade } 51. Shovels } 52. Rockets and Blue-lights } |
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In furnishing a Life-boat's equipment, the first duty is to provide her with everything that can contribute to the safety of those employed on this dangerous service ; and secondly, to make her as far as possible independent of all assistance from wrecked vessels, the crews of which are often in a helpless state, perhaps lashed to the rigging, and unable to throw a rope, or even to get from the wreck to the boat without help.

A Life-boat is therefore provided with lines, called Life-lines, some festooned round her sides, by the aid of which any one in the water using them as stirrups can get into her ; others with corks attached are thrown from within her when alongside a wreck, and float on the water all around her. She is also furnished with a Cork Life-buoy, which, with a line attached, can be thrown, or floated, to any one in the water, who might be too distant to reach the life-lines of the boat. She has likewise strong but light lines with grappling-irons attached, one at the bow and another at the stern, which, by being thrown into the rigging or on board a wreck, fasten themselves, so that the boat can be at once held to the wreck without the assistance of any one in her. An anchor and cable ; a good lantern for nightwork ; a compass ; and a drogue or water-bag, which is dragged behind a boat to prevent "broaching-to" when running before a heavy sea, are also necessary to a complete Life-boat's equipment.

In addition to the Life-boat, Transporting Carriage, and Equipment, a suitable *House* is indispensable to shelter them from the weather when out of use.

Fortunately the Institution was enabled, in 1857, to secure the services of Mr. C. H. COOKE, F.R.I.B.A., as its Honorary Architect, and his co-operation in connection with the erection of its Life-boat Houses has been

invaluable. From his plans and specifications upwards of 200 Houses have been constructed at different Life-boat Stations. Thus substantial and well-built houses have been provided, which will probably excite the admiration of those who may celebrate the Centenary of the Institution.

Again, in regard to the Leases and Conveyances of the sites for Boat Houses, the Society has had the able



services of Messrs. CLAYTON & SON as its Honorary Solicitors, to which office they were appointed in 1856. The late Mr. CLAYTON, Sen., rendered important assistance in connection with the Charter of Incorporation granted by Her Majesty to the Institution in 1860; and his two sons, Mr. FRANCIS S. CLAYTON and Mr. CHARLES H. CLAYTON have since, in conjunction with the Author, conducted all the legal business of the

Institution, which occasionally is of considerable importance—especially in some intricate cases of bequests, and titles to sites of ground on which the Life-boat Houses are to be built.

In respect to those sites, regard is particularly taken to their convenience, so that they may be handy for launching the Life-boat, and for her easy transport on her Carriage along the coast to the scene of the wreck. The House is usually forty feet long and seventeen feet wide ; its doors are fourteen feet wide, and their height about twelve feet. There are folding-doors of the above dimensions facing the water ; and if it should be deemed an advantage to be able to take the boat on her carriage to the rear of the house, doors of the same dimensions are also placed at that end, otherwise a small door at the rear end suffices. The Life-boat House is usually a substantial building, built of brick or stone, and having a slated roof. A boarding or flooring about six feet in length is placed over the joists at the rear end of the house, to keep the spare stores on ; and a batten with wooden pegs for hanging up the life-belts and small lines, is fixed at a convenient height along the side wall. In some of the Life-boat Houses gas has been fitted.

The average expense of a complete Life-boat Station is £800, in addition to £70 a year needed to keep the Establishment in a state of efficiency. The cost is made up as follows :—

Life-boat and her equipment, including Life-belts for the crew, and Transporting Carriage for the Life-boat	£550
Boat House (average cost)	250
Total	£800

CHAPTER XV.

CHARACTER OF THE SERVICES PERFORMED BY LIFE-BOATS—BRAVERY AND DEVOTION OF THE LIFE-BOAT MEN—SERVICES OF THE LIFE-BOATS AT CULLERCOATS—FILEY—DONNA NOOK—CAISTER—MARGATE — RAMSGATE — BROADSTAIRS — WALMER — KINGSDOWNE — PENZANCE, ST. IVES, NEWQUAY, AND PADSTOW, CORNWALL—FISH-GUARD—ABERSOCH—HOLYHEAD—NEW BRIGHTON—PORT LOGAN—MONTROSE—SKERRIES, COURTTOWN, AND TRAMORE—LIST OF THE LIFE-BOATS OF THE INSTITUTION, AND THEIR SERVICES.

SUCH is the history of the important machinery which human genius has contrived and human sympathy provided, for saving the life and property imperilled by storm and shipwreck ; but, valuable as it is, something more is necessary to make it available. Courage as well as genius is required to put it in action. The dangers to which the crew of a Life-boat are exposed entitle those who encounter them to the greatest credit. It is impossible to exaggerate the awful circumstances attending a Shipwreck. Let us picture the time, when after a peaceful sunset and the toils of the day are over, the hero of the Life-boat has retired to rest, and the silence of the night is unbroken except by the murmur of the winds, and the noise of the sea breaking on the shore. With the approach of the storm, however, the winds and the waves rise in fury upon the deep, and with their mingled vengeance lash the cliffs and the

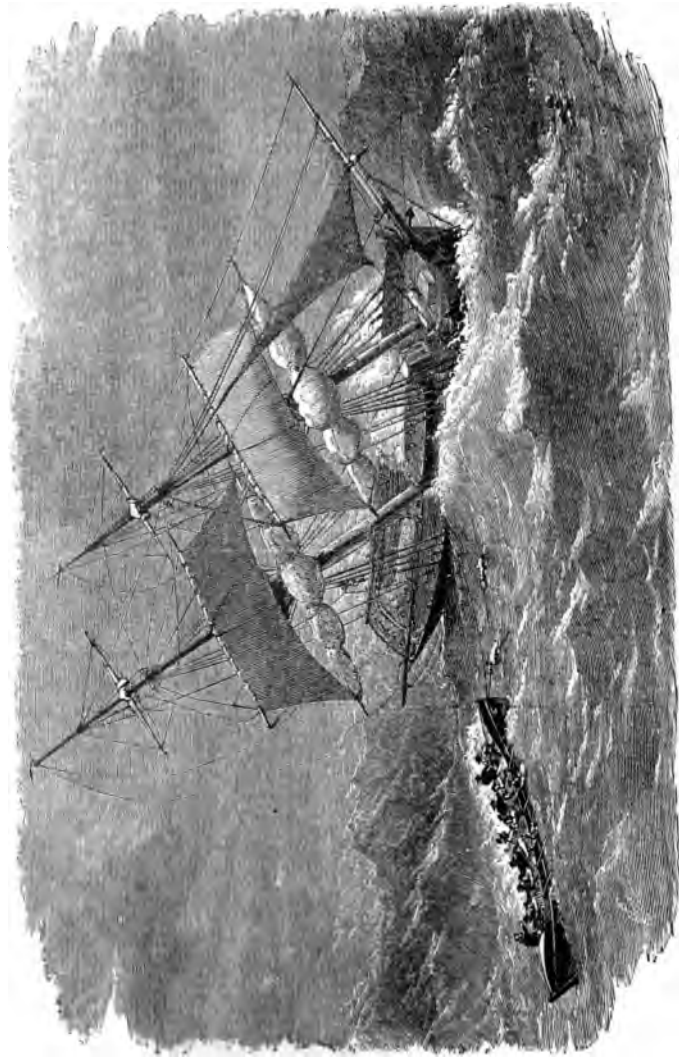
beach. A signal of distress rouses the coxswain and his men—crowds rush in curiosity to the cliffs, or line the shore, heedless of the driving rain or the blinding sleet. Barrels of tar are lighted on the coast, and the signal gun and the fiery rocket make a fresh appeal to the brave. The Boat House is unlocked, and the Life-boat, with her crew, is dragged hurriedly to the shore. The storm rages wildly, and the mountains of surf and sea appal the stoutest heart. The gallant men look dubiously at the work before them, and fathers and mothers and wives and children implore them to desist from a hopeless enterprise. The voice of the coxswain, however, prevails. The Life-boat is launched among the breakers, cutting bravely through the foaming mass—now buried under the swelling billows, or rising on their summit—now dashed against the hapless wreck still instinct with life—now driven from it by a mountain wave—now embarking its living freight, and carrying them, through storm and danger and darkness, to a blessed shore. Would that this were the invariable issue of a Life-boat service ! The boat that adventures to a wreck meets with disaster itself occasionally ; for in the war of elements ere now the Life-boat crews themselves have been the first victims ; and it is with a deep consciousness of the sublimity of this—the heroic side of the Life-boat history—that we now approach the subject of the gallant deeds of those unlettered Nature's Sea Kings. It is certainly embarrassing, on account of their frequency and thrilling interest, to make a selection from the accounts ; but the following cases may be taken as fairly illustrative of the general character of the services usually performed by the Life-boats of the Institution.

THE WORK OF THE LIFE-BOAT.

“Ye mariners of England,
That guard our native seas;
Whose flag has braved a thousand years
The battle and the breeze!
Your glorious standard launch again
To match another foe;
And sweep through the deep,
While the stormy winds do blow,
While the battle rages loud and long
And the stormy winds do blow.”

CULLERCOATS, NORTHUMBERLAND.—On a New Year's morning some years since a severe tempest was experienced on our north-east coast, and soon after day-break the coastguard-men on the look-out at the Spanish Battery, Tynemouth, saw the brig *Lovely Nelly*, of Seaham, deeply laden, with a flag of distress flying. She was struggling to get to the northward, but struggling in vain, and rapidly driving in upon the coast. The coastguard-men followed her along the shore with the rocket apparatus, and, as they went on, the people of the villages turned out to join them; so that, ere long, each headland had its anxious crowd of lookers-on. It was a very sad sight to see. Some of the vessel's sails had been blown away, and she grew more and more unmanageable amid the heavy seas that broke around and over her. At length, abandoning the desperate effort to get to the northward, her crew, as the last chance of life, ran her for Whitley Sands, five miles north of Shields. She was so deeply laden, that she struck on a ridge of sunken rocks and was still three-quarters of a mile from the shore. It was impossible to reach her with rockets. Only one hope remained—the Life-boat! As fast as they could run through the snow, driving wind and rain, Life-boat men and fishermen made off to Cullercoats for the Life-boat belonging to the NATIONAL LIFE-BOAT INSTITUTION. Six horses were fastened to her carriage, and down they came at

a gallop to the sands. She was speedily manned—by a gallant crew of Cullercoats men, who pulled out as for their own lives; and not a moment too soon did they reach the ship, which was now broadside on to the sea, her crew in the rigging, and the waves breaking over her half-mast high. Cleverly and deftly was the Life-boat laid alongside; the vessel was grappled, and the boat held to her by a strong rope. Instantly the crew made towards their deliverers; but even as they left the rigging, one man was much cut in the face and head, the mate had his shoulder dislocated, and three of them were swept into the sea. The Life-boat was handled with great skill; two of the crew were at once picked up, and as the third man went down to his death, a strong hand seized him, with a grasp of iron, by his hair, and dragged him up to life. Two other men were got into the boat. Did any remain on board the ship? Yes: how overlooked, how so left to die, we know not—but the little cabin-boy remained. The boy's cry for help grew very pitiful: for some time he dared not venture out of the weather rigging; at last he did so, and was seen in the lee shrouds: "he had got wounded in the head, and his face was covered with blood." One of the Life-boat's crew has since said to the Author that every face around him grew pale, and tears came from eyes little used to shed them—"They clenched their teeth, and with their own lives in their hands," dashed in their boat to save him. The sea beat her back. They dashed in again, to be swept back once more. Again and again they tried: the poor boy, meanwhile, crying terribly in his great loneliness and despair. He was *so* young, and the coast was *so* near! But the vessel began to part, and the unstepped mast must fall, and would crush the Life-boat if she stayed one minute longer in her then position. Then sacrificing one life to save many, a brave man gave the order, in a hoarse, broken voice, to "cut the rope." In an instant she was swept away under the vessel's stern—not a second too soon, for at once the mainmast fell, with an awful crash, on the very spot she had just left, and the vessel immediately broke up. The boy—



To face p. 116.

THE LIFE-BOAT SAVING THE CREW OF THE BRIG "LOVELY NELLY."

“his face was covered with blood”—fell into the sea. Clenched in agony or clasped in prayer, his little hands were seen once—twice—lifted above the waves! the Life-boat again rushed towards him, but the tempest swept away his boyish cry before the roar and tumult of the winds: he did not rise again. The Life-boat was pulled back to the land.

FILEY, YORKSHIRE.—On the 10th of Feb., 1871, a very severe gale was experienced here, accompanied by a tremendous sea. About noon a vessel, which proved to be the schooner *Mary*, of North Shields, was seen inside the buoy off the Filey Brigg. She was dismasted and altogether in a disabled state, having been overtaken by the storm when off Flamborough Head. It was thought she must go down immediately, with all hands, as no Life-boat, it was considered, could get to her. Nevertheless it was at once resolved to make a strenuous effort to prevent such a sacrifice of human life. Accordingly, without loss of time, the Life-boat, which was all ready mounted on her carriage, was quickly drawn by six horses to the northward about half a mile, and was then launched. There was no difficulty in getting a crew from amongst the fishermen, for the brave fellows almost fought in their anxiety to get the life-belts and take part in the work of saving life. Meantime the vessel was drifting on through a frightful sea; the Life-boat followed, and after a very severe pull gained her, just as she was going ashore, took off the master and crew of three men, and safely landed them amidst the cheers of hundreds of spectators. The poor men had given up all hope of being saved, although, to use the mate's words, “he knew there was a gallant Life-boat and crew at Filey.” Their vessel sank soon after they had been saved by the Life-boat.

DONNA NOOK, LINCOLNSHIRE.—On the 19th of Oct., 1869, during one of the worst gales experienced on this coast for years, the steam-whaler *Diana*, of Hull, was observed stranded on the Slate Run. The wind was

blowing a perfect hurricane from the north at the time. The Life-boat *North Briton* was quickly manned and launched, and succeeded in bringing safely ashore twenty-five of the crew. The next tide the vessel went to pieces, and the valuable cargo of oil and whalebone was strewn along the shore.

On the 27th of Oct., 1869, another severe gale sprang up from the N.N.E., and the barque *Bertolemeo Cerruti*, of Genoa, which was riding at anchor, was observed to drift rapidly on shore, the sea soon making a complete breach over her. The Life-boat was promptly launched ; but the sea, wind, and tide drove her to the southward at a fearful rate ; she was therefore run ashore again as quickly as possible, and plenty of help being at hand, she was taken on her carriage to windward of the wreck and launched again, but with the same result at first, all attempts to throw a line or buoy being of no avail. With heroic determination, however, the crew strenuously renewed their exertions, which were at last crowned with success, for, amid the most intense anxiety on the part of the crowds on shore, the boat, which was frequently seen to be thrown almost end-over-end by the heavy sea, was observed to linger, by which it was evident she answered to her anchor, which had been thrown out. She was then allowed to drift right under the bows of the wreck. Some of the shipwrecked men were on the bowsprit ready with ropes and chains, which one of the Life-boat men succeeded in grappling and in making fast to the boat. The sea at this time was running over the ship in a fearful manner, and two of the crew had a very narrow escape of being washed overboard. Now commenced the difficulty of getting the men into the Life-boat. It was a hard task, as they could only reach the Life-boat when she was under the bowsprit, and then only by lowering themselves by ropes. One fell into the sea, but was quickly hauled into the boat. One after another they dropped into the arms of the Life-boat men, until the whole of the vessel's crew, fourteen in number, were got into the boat, which brought them safely to land. The boat most immediately began to break up, and soon

afterwards not a vestige of her was to be seen ; and had not the Life-boat succeeded in reaching her at the time she did, all these shipwrecked foreigners would most probably have perished.

CAISTER, NORFOLK.—On the morning of the 1st of Dec., 1869, about seven o'clock, the beachmen, during a strong wind from N. by E., with squalls, saw what appeared to be a dismasted vessel at the back of the Scroby Sands with signals of distress in the rigging. They at once proceeded off in the large Life-boat, the *Birmingham*, and found the upper part of a barque which, it appears, had struck on the Hasborough Sands about half-past ten o'clock the previous night. This portion had broken away, and drifted to the spot where it was seen from the shore, and by the time the Life-boat reached it, it had floated down the coast as far as Yarmouth. It consisted of the bulwarks (which on the lee side were under water), deck, and a few planks below, and was little more than a raft, but it had on it the whole of the crew, numbering fourteen men, of a wrecked barque of 447 tons, named the *Helsingoe*, of Elsinore. The poor fellows had been nine hours adrift on it in a terrible sea with the weather very cold. The difficulty of getting them off, in the midst of the heavy sea, was great, and the Life-boat was a good deal damaged, for, on account of the ship's broken mainmast, spars, &c., the boat could not approach the wreck to leeward, and had to be taken to windward, and to get at the crew she had to drive alongside, and time after time she grated with great violence against the wreck, from which the ship's bolts were projecting. Some of the Life-boat men said the boat would be dashed to pieces ; but others replied, "We must save the poor fellows !" And ultimately, after gallantly exerting themselves for nearly an hour, the crew of the Life-boat had the great satisfaction of saving the whole of them. None but daring and experienced men could have accomplished this rescue. The boat was subsequently towed into Yarmouth harbour by a steamer, each side of the pier-head being lined with spectators.

The rescued men were then landed and taken to the Sailors' Home. They were respectable and well-behaved men. The mate had his shoulder injured, and was taken to the Hospital, where he was afterwards seen very cheerful and happy. The hull of the ship, which had been left behind, afterwards floated off the sand, and finally came ashore southward of Gorleston Pier.

MARGATE.—About half-past three o'clock on the morning of the 25th of Jan., 1871, while the wind was blowing strongly from the east, and during a heavy snow-storm, the brig *Sarah*, of Sunderland, bound from that port to Southampton with coal, and having a crew of six men on board, went on the Margate Sands. The wreck was not observed from the shore until about noon, the hull of the vessel being under water. As soon, however, as it was noticed, the *Quiver* Life-boat was immediately launched, and proceeded to the spot, when the crew were found to have taken refuge in the foretop. With some difficulty, on account of the heavy sea running alongside the wreck, the six men were happily rescued from a watery grave; two of them were very severely frost-bitten in the legs, and it was not without much difficulty and danger that they were got into the Life-boat. However, the efforts of the boatmen ultimately proved successful, and all were safely brought ashore, and the two injured men at once placed under medical treatment. The snow was lying some inches deep in Margate at the time. A lugger had attempted to get to the rescue of the Shipwrecked crew, but was unable to get sufficiently near to the wreck, through the heavy breaking seas, to render assistance; and, no doubt, the poor men would have perished in the absence of the Life-boat and her gallant crew.

About a fortnight later, the same Life-boat was able to effect the rescue of another Shipwrecked crew. A strong gale from the E.N.E. was experienced there on the 10th of February, and, about ten o'clock at night, a vessel was observed burning a tar barrel as a signal of distress, she apparently being on the Walpole Rock.

The *Quiver* was at once taken along the shore on her transporting-carriage to the lee side of the Longnose Rock, and launched through a very heavy surf to the vessel, over which the sea was then breaking. With some difficulty the crew of nine men were taken off by the Life-boat. The vessel was the brig *Thessalia*, of Whitby. The horses used to draw the Life-boat on its carriage, although accustomed to the work, could hardly be got to take the boat to the water's edge on account of the strength of the wind and heavy rollers setting in, which at times completely covered them.

RAMSGATE AND BROADSTAIRS.—At daybreak, on the 28th of March, 1871, during a north-easterly wind and a heavy sea, a large barque was seen ashore on the Goodwin Sands with a signal of distress flying. The Life-boat *Bradford* and the harbour steam-tug *Vulcan* were at once despatched to the spot, and on arriving there found the Broadstairs Life-boat, the *Samuel Morrison Collins*, had also just arrived. Both boats then went alongside the barque, which proved to be the *Idun*, of Bergen, bound from Newcastle to Venice with coals. The crew of fourteen men, together with the son and daughter of the master, were then taken into the Life-boats; but on returning to shore the boats unfortunately grounded on the sands, where they had to remain, in the midst of great danger, three hours, until the flood tide made, when they were taken in tow by the steamer, and arrived safely in Ramsgate Harbour about three o'clock that afternoon.

The master of the vessel afterwards expressed, through the columns of the *Times*, his acknowledgments for the valuable services thus rendered to himself and the others on board the wrecked vessel. His letter was as follows :—

WRECK ON THE GOODWINS.

TO THE EDITOR OF THE 'TIMES.'

SIR,—Will you kindly allow me, through your widely-circulated journal, on behalf of myself and crew (sixteen in all) of the bark *Idun*, 670 tons, of Bergen, Captain Meidell, from Newcastle, bound for Venice with

a cargo of coal, wrecked on the Goodwin Sands on the night of the 27th of March, in a strong gale from the northward and eastward, to express my heartfelt thanks and deep sense of gratitude to the brave and gallant crews of the Ramsgate and Broadstairs Life-boats and the Ramsgate steam-tug *Vulcan*, for the invaluable services rendered to us under circumstances of very great distress and danger on the Goodwin Sands, which resulted in the preservation of all our lives?

The noble boats, under the able and skilful management of their persevering crews, came out from the land at daylight in the morning, and dashed fearlessly into the foaming breakers, crossed the boiling sand, and at very great risk to their own lives (the sea breaking heavily into the boats as they approached) succeeded in reaching the ship and lying alongside to our rescue. We were all then hastily, but most kindly assisted into the two Life-boats (my daughter being with me a passenger), together with a quantity of nautical instruments, clothes, and other effects. At this time the steam-tug was waiting to windward at the edge of the sand, near the breakers, to receive the boats, but the boats, on leaving the ship, could not get off the sand, the tide not having flowed sufficiently to enable them to pass through the breakers; they were, therefore, compelled to wait and allow the boats to beat over the sand to leeward through the boiling sea, breaking heavily into them for three hours, when at length they succeeded in getting off the sand, where the steam-tug (having come round to leeward) was waiting in readiness to receive them.

The tug then took the two Life-boats in tow (one being disabled in her rudder), and steered for Ramsgate Harbour with flags flying from their mastheads, where we arrived about 3 p.m. We were received with loud shouts of joy from hundreds of English spectators on the pier, who had assembled to welcome our safety to land. We were then conducted to the Sailors' Home, where refreshments were already prepared in readiness for us, which we found most welcome after an exposure of about fourteen hours to wet and cold, and where we still remain for the present. We left the ship full of water, with her mainmast gone, and no prospect of her ever coming off the sand.

Permit me, Sir, in conclusion to say that too much praise cannot be given to the English nation for the introduction and success which has attended their noble service, the LIFE-BOAT INSTITUTION, established for the preservation of shipwrecked mariners of all nations.

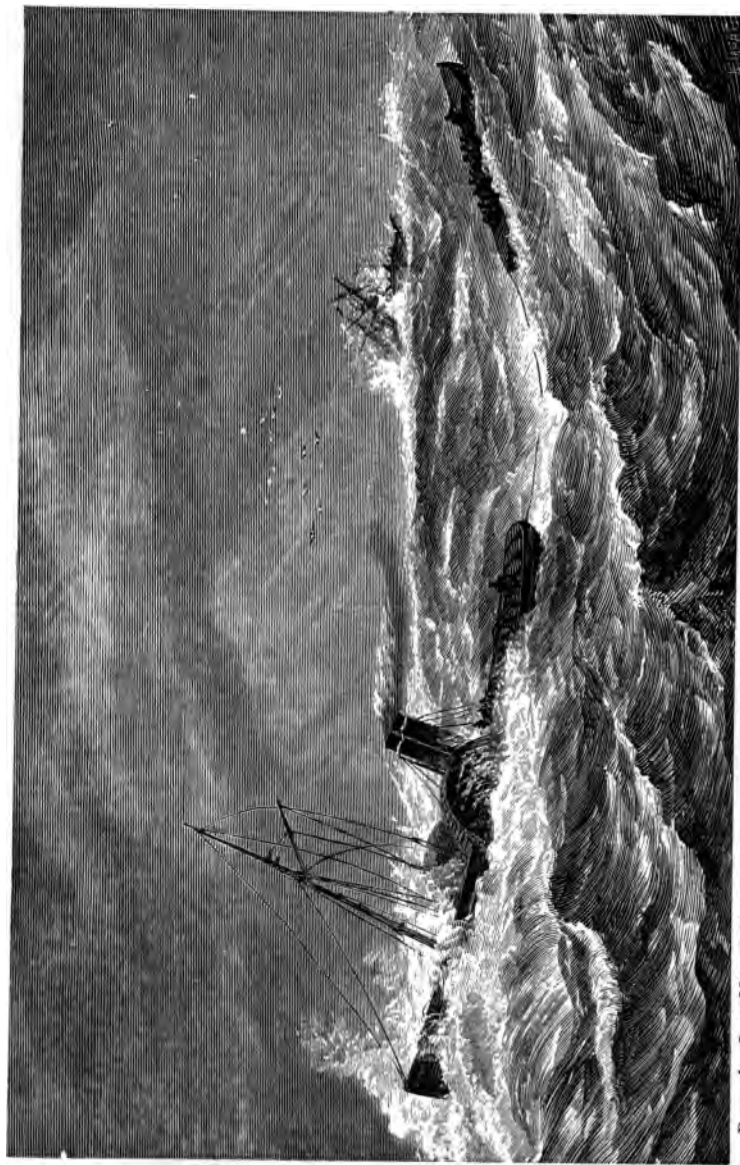
Your insertion of these my grateful acknowledgments for the invaluable services rendered us will greatly oblige

Your obedient Servant,

H. C. MEIDELL.

(Captain of the said bark *Idun*).

Again, on the 19th of March, 1872, the Ramsgate Life-boat and Steamer, and the Broadstairs Life-boat *Samuel Morrison Collins*, saved the crew of eight men from the brig *Defender*, of Sunderland, which was wrecked on the Goodwin Sands during a fresh gale from the N.E., and in a very heavy sea. The Broadstairs Life-boat was the first to arrive at the scene of the wreck, but in running towards the vessel she was struck



Drawn by Capt. May, R.N.]

THE LIFE-BOAT IN TOW.

To face p. 122.

on the broadside by a tremendous sea, which in a second threw her on her beam-ends to the momentary consternation of her crew. She however behaved nobly, and elicited from the brave fellows their hearty approval. She was full of water, but that was soon discharged. By this time she had been driven to leeward of the wreck, and the anchor had to be dropped, prior to a fresh attempt being made to go alongside. Meantime the Ramsgate Life-boat had been towed to windward, both tug and boat shipping much water, and the paddle-box of the steamer being damaged by the heavy seas. The Life-boat was then slipped, sail was made, and when she neared the vessel the anchor was let go, and she veered down abreast of her, when a line being thrown on board, she was hauled alongside between the heavy seas that were breaking over the wreck. In doing this, much risk was incurred; the boat, indeed, having her stern damaged through being dashed against the side of the brig. With much difficulty the master and seven of the crew were saved by the Ramsgate Life-boat; there was one man left, and he got into the ship's boat, and slipped down to the Broadstairs Life-boat and was saved.

WALMER, KENT.—Most admirable service was performed on the morning of the 16th of Oct., 1872, by the Walmer Life-boat *Centurion*, as will be seen by the following report furnished by her coxswain:—He says, "It was blowing hard from the southward, with a heavy sea on the beach, when I observed a vessel on the Goodwin Sands; I immediately assembled the boat's crew and launched the Life-boat, and proceeded towards the Sands under a reefed storm foresail. On crossing the South Sand Heads in a tremendous sea, the boat filled seven or eight times, and two of our men were nearly washed overboard. After crossing the Sands we kept away towards the wreck, and on nearing her saw she was full of water, with the sea making a clean breach over her. Feeling it would be dangerous to go alongside, we let go the anchor to windward and dropped down

towards her ; we could see the crew huddled together before the foremast, with the seas breaking over them. On reaching as near as possible, we managed—with the assistance of the loaded cane and line—to get a rope to the vessel, and each man fastening it round his body, we hauled them through the broken sea ; but the foremast going, and the seas running higher, when two only had been saved by this means, the remaining two men took to the mainmast, where there was great difficulty in communicating with them ; but in about half an hour the maintopmast rigging gave way, and having hooked the wreck of this, the men were induced to slip down it into the sea, and get hold of the rope that we had secured to the wreck. In this way the remaining two men were saved, making in all four men, the entire crew of the vessel. They were very much exhausted when taken into the boat. The wrecked vessel was the schooner *Hero*, of London, bound from Newcastle to Truro with a cargo of coals. In less than five minutes after the men were rescued from their perilous position, the wreck disappeared, and there was not a vestige of her to be seen. We lifted our anchor and proceeded towards the shore, where we hove up at 11 A.M., in the presence of a concourse of people who took hold of the capstan rope and hauled the boat up to the boat-house amidst the cheers of the people." The crew spoke in great praise of the performance of the Life-boat on this occasion.

KINGSDOWNE, KENT.—This Life-boat performed, in conjunction with the Walmer Life-boat, a very gallant and praiseworthy service a year or two since, as will be seen by the following account, which is taken from the depositions made by the coxswains and crews of the Walmer and Kingsdowne Life-boats :—

"On the morning of the 17th Dec., 1872, we were summoned by the firing of minute guns and other signals of distress from some vessel on the Goodwin Sands, and at 3 A.M. we launched from Walmer and Kingsdowne simultaneously in the *Centurion* and *Sabrina* Life-boats, the wind blowing heavy from S.S.W.,

weather thick with rain. We proceeded in the direction of the signals, and, after encountering a fearful sea, we discovered a large steamship on shore on the inner part of the Goodwin, known as the *Callipers*. At 4 A.M. boarded the said vessel, which proved to be the *Sorrento* screw steamship from the Mediterranean, with a cargo of barley, and bound to Lynn. The master asked us to remain and float the vessel, if possible. We put on board the greater part of both Life-boat crews, who threw over cargo and carried out an anchor, with a view, if possible, of floating her off the Sands at flowing tide, but the wind and sea increasing, as the tide flowed, she soon became a total wreck, filling with water, and the heavy broken waves making a clean breach over her. At 11 A.M., thinking the two Life-boats, the *Centurion* and *Sabrina*, were insufficient to rescue the whole of the steamer's crew, her ensign was hoisted, Union down, for more assistance, but none came, and at noon the *Centurion* Life-boat, which was then lying alongside, together with some of the steamer's boats were swept away, and the Life-boat was much damaged in her bows by a huge wave breaking bodily over the steamer, sweeping all before it, and causing some of the ship's boats to come in collision with the *Centurion*, which was immediately swept, with the rest of the floating wreckage, into the surf, and to the back of the Sands altogether, leaving the greater part of their crew on board the steamer. The *Sabrina* Life-boat was anchored a short distance to windward, and the coxswain seeing the disaster happening to the *Centurion*, and feeling assured that a heavy loss of life must immediately follow, and that amongst the sufferers must have been his three sons, who had voluntarily accompanied him in the Life-boat, and were put on board the steamer, to try and float her from off the Sands, ordered the *Sabrina* to be immediately run alongside, though it should cost his own life and the rest of his boat's crew. This act was so successfully performed that the steamer's captain and his crew of twenty men, together with the pilot and the Life-boatmen, immediately leaped on board the *Sabrina*, which, with the

whole party of no less than forty-six persons, immediately sheered off, set a close-reefed foresail, and steered through the heavy boiling surf to the off edge of the Goodwin, where our brethren in the *Centurion* were awaiting us at anchor, and to whom we transferred a necessary portion of the steamer's crew and Life-boatmen from the *Sabrina*, and then immediately proceeded, in company across the Sands in a very heavy sea, round the North Sand Head for Broadstairs, where we arrived in safety at 2.15 P.M."

PENZANCE.—The magnificence and terror of a gale on the rock-bound coasts of Cornwall can scarcely be exaggerated. The long impetuous swell of the great Atlantic, flinging itself on the rugged granite cliffs which guard the shores, is by its own violence broken into seething foam, and wakens up a wild roar of deepest diapason, full of majesty and strength. In the many sandy bays and coves which stud the seaboard, the scene, though somewhat different, loses none of its fearful power. There the ocean billows dash onwards, until, with sound as of thunder, they burst upon the beach. When to the tumult of the elements is superadded the struggle of some ship, whose crew in the very grip of death, strive for life, the excitement becomes intense. A few years since, on the 6th December, during a fearful gale from S.S.W., a horse, reeking with foam, galloped into Penzance, bearing a messenger with intelligence to Mr. DOWNING, the active and intelligent Hon. Sec. of the Life-boat Institution in the town, that a barque was embayed and in peril. The Sabbath bells were ringing, and congregations were assembling to worship Him whose voice was upon the waters; but on the news, "Life in danger!" the quiet of the sanctuary was exchanged for the tumult of the storm, and hundreds were soon anxiously watching for the devoted ship, so that help might be afforded. "There she is!" cries one. "No, 'tis the mist." Again and again are the watchers deceived, until at length a momentary lifting of the cloud shows the doomed vessel heading westwards, but making fearful

leeway. And now nearer and nearer she approaches. "She is saved!" shout some; but the experienced saw that her fate was near. Good seamanship, stout anchor-chains, well-found gear—all were unavailing in that terrible strife, and soon she was drifting helplessly to the shore. "The Life-boat.—The Life-boat." Away, rumbling through the streets of quiet Penzance, manned by her brave crew, drawn by horses urged to full speed, away, hastens the boat of mercy adorned with the trophies of many saved crews. Not a moment is lost. She has been for hours in readiness, and now pursues her way to the rescue. Brave men are with her who have learned to look on danger without fear, and think only of duty. Husbands, fathers, brothers, sons, are in that breaking vessel in the jaws of death, and all other feelings are absorbed in the desire to save them. TOM CARBIS, the coxswain, and HIGGINS, the second coxswain of the boat, are at their posts. The Hon. Secretary and some of the Committee are at theirs. Thousands of persons of every class and degree, including scores of women of all ranks, line the shore. The boat, borne by the rush of men and horses, traverses the yielding beach, the launching lines are manned, the boat dips her prow into the heavy seas, and cheered to the echo by the vast crowds around, she speeds on her perilous way. Not a word is spoken by the crew. CARBIS holds the tiller, his firm face speaking his strong resolve, that he, like a true British sailor, will do his duty; by his side Captain CAY, R.N., the Inspecting Commander of Coastguard, and HIGGINS, Coastguard man, the second coxswain; and on they go with their brave crew, daring danger and death, to the rescue. While this was going on to the westward of the *North Britain*, a terrible event occurred between the barque and the shore to the eastward, at a distance of more than half a mile from the Life-boat. The captain of the barque had seen two open boats vainly attempt the rescue. Alas, he did not see the Life-boat. He therefore gave orders to lower one of the ship's boats,

which was immediately upset and stove in against the sides of the ship. The jolly-boat, of 22-feet keel and 6-feet beam, was then got out of the davits, and with great difficulty nine men and the captain got into her, to try to reach the shore. The captain kept her head well to the northward, and on she rushed, driven as if by an irresistible impulse, amid the chéers of the crowd and the prayers of many that she might safely reach the land; she was nobly manned, and struggled hard for the shore, but all in vain. Behind her is an immense breaker. "She will be swamped!" "She must go down!" "God save her!" are the cries of all around. And in less time than it takes to write these words, or even to read them, the wave holds her in its strong grasp, whirls her round, turns her keel up, and her precious freight of ten human beings are struggling in the sea some three hundred yards distant from the shore. If ever a picture of child-like helplessness was presented by grown men, this was one. No man could get near them, no one could help them. They were as straws and waifs on the ocean. As if to mock all human effort, the sea immediately around them was, for a moment, almost as calm as a glassy lake, and the half-score of drowning men were in a gulf of smooth water; but, alas! to the greater number it was the dark gulf of death. Three of them seized the keel of the boat, but three times were they driven from their hold by the heavy breakers. Two or three make for the oars, but the rest beat about in despair, or are carried away by the under-current. The captain, a fine muscular sailor of fifty years of age, swims for the shore, and four or five others struggle on behind him. Scores of men join hands on the beach, and stretch into the sea, to meet some breathless swimmer fortunate enough to get within range. One brave man, by name WILLIAM JEFFERY, an athletic wrestler, a fine boatman, and a bold swimmer, throws off coat and waistcoat, and, close followed by many others, heroically dashes into the teeth of the breakers, in defiance of danger, resolved that, if it were possible, he would rescue at least one

fellow-creature from a watery grave. Near him is one of the drowning men. He makes a tremendous dash, grips his prize with a determined grasp, and turns towards the shore. Others now take the seaman from him, and again and again the brave man, at imminent risk, rushes out and stays not until he saves three from all but certain death. Five men reached the shore, one only to survive a few moments, notwithstanding all that cordials, and rubbing, and medical skill could effect. Four only of the ten men who left the ship in the jolly-boat, half an hour before, now survived. And now a momentary pause ensues. Whispers of disaster are abroad. The shipwrecked men are still on board, and the Life-boat is turned head to shore. What can it mean? The story of her struggle, disaster, and final victory is forcibly told by Mr. DOWNING:—After a pull of more than an hour she reached the vessel. As she was pulling under her stern a great sea struck the boat and immediately capsized her. All on board were at once thrown out. The noble boat, however, at once self-righted. The coxswain was jammed under the boat by some wreck, and very nearly lost his life, having to dive three or four times before he could extricate himself. When dragged on board he was apparently dead, and in this state was brought ashore. Another man, EDWARD HODGE, pulling the stroke-oar, was lost altogether from the boat, and the men were all so exhausted that they could not pull up to rescue him. But his cork jacket floated him ashore, when a brave man, named DESREAU, swam his horse out through the surf and rescued him. Captain CAY, R.N., who expressed an earnest wish to go off on this occasion, was also on board, and, with others, suffered severely. It is due to him to say that his great coolness and judgment, as well as his exertions, greatly conduced to the bringing of the boat, with her exhausted crew, to shore. The second coxswain, HIGGINS, also behaved like a hero, and though scarce able to stand, managed the boat, when CARBIS was disabled, with consummate skill. Judge of our dismay on seeing the boat returning and no rescue effected. We knew at

once that some disaster had happened, and when the boat came near we rushed to meet her. There was the coxswain, apparently dead, a stream of blood trickling from his wounded temple, one man missing, and all the crew more or less disabled. At once I called for volunteers. HIGGINS then shouted, "I'll go again, sir!" and by his bravery produced a wonderful moral effect. This I would not allow; and his place was at once most efficiently filled by Mr. BLACKMORE, Chief Officer of the Coastguard at the Penzance Station, and a braver and a worthier man never took the tiller of a Life-boat. Mr. S. HIGGS, jun., also volunteered, and thus, in a short time, another crew was formed. I cannot describe in anything like adequate terms the struggle which now followed. The boat had to be pulled to windward in the teeth of a tremendous wind and sea. Sometimes she would rise perpendicularly almost to the waves, and we looked on with bated breath, fearing she must go over, and then again she would gain a yard or two. The way was disputed inch by inch, and at last the victory was won. But no one who beheld the struggle will ever forget the manner in which the boat was managed by Mr. BLACKMORE. Loud and long rang the cheers as the boat neared the shore, and quickly the shipwrecked mariners and their brave rescuers were safe. It was afterwards found that one of the second crew, named PASCOE, had three ribs broken; but both PASCOE, HODGE, and CARBIS were well cared for, and after a while recovered. The vessel was the *North Britain*, Captain JOHN ROGERS, with 950 tons of timber and deal on board from Quebec.

ST. IVES, CORNWALL.—At daylight on the morning of the 28th October, 1865, the wind blowing strong from N.N.E., with a heavy ground sea, a vessel was observed on shore on the western spit of Hayle Bar, from three to four miles distant from St. Ives. The sea was making a clean breach over her, and the crew were supposed to be in the rigging. The St. Ives Life-boat was at once launched. In crossing the bar, with the drogue or drag-

bag in tow, which carried her safely over two heavy surfs, a tremendous sea broke over the stern, and the drogue-rope breaking, from the immense strain on it, she flew before the crest of the surf in almost a perpendicular position, and running her bow under water, broached to and upset; she soon however righted, and all managed to get on board. Two oars, grapnel, anchor, and rope, were lost, and two crutches broken. Although rowing four oars only, the crew contrived to get her under the lee of the vessel, which was the French brig *Providence*, of Granville. With a heavy sea and strong under-current, however, they found it impossible to get alongside. Nearly an hour passed in signalling to the French crew to send a rope by means of a spar or raft; when this at last was done, the coxswain signalled to haul on board the life-buoy, intending to take the men off through the water, but he could not make himself understood. Two of the crew now endeavoured to reach the Life-boat by means of the connecting rope; one was being dragged on board, and the other was within four or five yards, when a fearful sea broke on the broadside of the boat and upset her a second time. She righted instantly; but the poor fellow who was on the rope lost his hold, and was never seen again. The other held fast to the boat, and the crew once more got into her without accident. The communication with the vessel had not been broken, and the Life-boat again hauled up as near as possible to her. The captain and remaining two men then took to their boat, when the second wave capsized them. Through a fearful sea the Life-boat was hastily hauled ahead, and the three men were most fortunately picked up. The crew of the Life-boat landed at Hayle thoroughly exhausted. A more heroic service has perhaps never been rendered by any boat. In admiration of it, a local contribution was raised to present a suitable acknowledgment of their bravery and endurance to the Life-boat's crew, in addition to the awards of the LIFE-BOAT INSTITUTION. The amount collected exceeded £100, giving to each man between £12 and £13, and we feel sure none will be found to say that it was not well deserved.

The late EMPEROR OF THE FRENCH was so highly pleased with the conduct of the St. Ives Life-boatmen on this occasion, that he signed a decree—for the first time in the case of Saving Life from Shipwreck—granting a Gold Medal of the First Class to Mr. NICHOLAS LEVETT, the coxswain, and a Silver Medal of the First Class to each of the crew, viz., PAUL CURNOW, THOMAS VEALE, WILLIAM VEALE, RICHARD CURNOW, NATHANIEL OLIVER, WILLIAM PERKINS VEALE, ISHMAEL JOB, and JOHN BLEWETT.

NEWQUAY, CORNWALL.—On the 21st of Dec., 1871, the Greek brig *Calamidas* was in a very perilous position in Newquay Bay, during a strong N.N.W. gale, accompanied by a very heavy sea. The coast guard attended with the rocket apparatus, but the ship was too distant from the shore to be reached by the rocket lines. The Life-boat *James and Elizabeth* was launched, and proceeded as quickly as possible to the spot, a distance of about six miles. Before, however, she arrived at the wreck, ten of the crew had taken to their boat, and rowed along the shore outside the breakers, seeking a place where they could best try to beach their boat. Arriving abreast of Mawgan Porth, they turned to run the boat in, and in a few minutes every man would inevitably have perished, owing to the tremendously heavy cross seas running in the Cove and the resistless undertow. At this moment the Life-boat was running up the coast under canvas on her way to the brig, on an opposite but parallel course to the ship's boat, and about 300 yards further from the shore. The boats were passing each other at the time the ship's boat turned to run for the beach, but the sea was then running so high that the crews of the two boats could not see each other, although so near, despite the signals from the people on the cliff. At this juncture, when a minute later would have been too late, the ship's crew caught sight of the dark brown sails of the Life-boat, as she was lifted on the crest of a wave. They at once proceeded towards her, and were speedily on board the Life-boat, which was then only about a hundred yards from the brig. A few minutes



Drawn by the late EDWIN WEEDON, Esq.]

THE LIFE-BOAT UNDER SAIL.

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afterwards the ship's boat, although a very fine boat, was struck by a heavy sea, which turned her over, filled her with water, and sent her among the rocks in fragments. The ten rescued men were all Greeks. They were safely landed at Newquay Pier. Just before they reached the shore, the master gave the coxswain of the Life-boat to understand, by signs, that one of the crew had been left on board the ship, he declining to leave at the time the others made for the land. Having put the ten men ashore, the Life-boat again proceeded at once to the brig, and after an absence of three hours, returned with the man.

PADSTOW, CORNWALL.—On 2nd April, 1872, during a strong gale from the N.N.W., and in a tremendous sea, the barque *Viking*, of Sunderland, went ashore in Harlyn Bay, near this place. The City of Bristol Life-boat, *Albert Edward*, was taken on its carriage to the bay and launched. After a severe struggle the wreck was reached, and the boat began to take off those on board from the bowsprit, the only accessible part of the vessel. An infant was first lowered on to the bows of the boat, one of the ship's crew holding it. The child was saved, but the sailor was unfortunately washed overboard and drowned. The boat itself was at the same time driven away from the ship on the rope parting, and by a succession of seas was forced ashore, when the infant was landed, and another and successful effort made to reach the wreck. The master's wife and boy, and four of the crew, were taken into the boat that time and safely landed. One man missed falling into the Life-boat from the ship, but fortunately he was washed ashore, although in an exhausted state. The remaining three men of the crew had been saved before the arrival of the Life-boat, with the praiseworthy and venturesome assistance of the persons on shore. This Life-boat service was indeed one of a very exemplary character, as will be at once conceived when we consider the length of time the service occupied, the difficulty of launching the Life-boat from the flat sandy shore, and working her when afloat when she was

never free from heavy seas and surf; the very great exertions the crew were required to make to reach the vessel, from the seas on either side of her meeting at the bow and driving her back; and from the boat having had to approach the wreck three times, in consequence of the connecting ropes having parted on two occasions. It should be mentioned that double the ordinary reward was voted on this occasion by the Institution to the brave Life-boat men, together with the Silver Medal of the Society, and a copy of the vote, inscribed on vellum, to each of the two coxswains. It is also gratifying to know that Captain THOMAS GENTLES, the master of the *Viking*, wrote expressing his gratitude for the kind services and sympathy all had shown him on the occasion; and he added, "We are completely unable to express our grateful feelings to Coxswain CORKILL and the crew of the Life-boat, for their determined and gallant conduct on the occasion, in again and again bringing the Life-boat to the *Viking*, after being so many times driven back by the tremendous sea which so continuously broke around the ship."

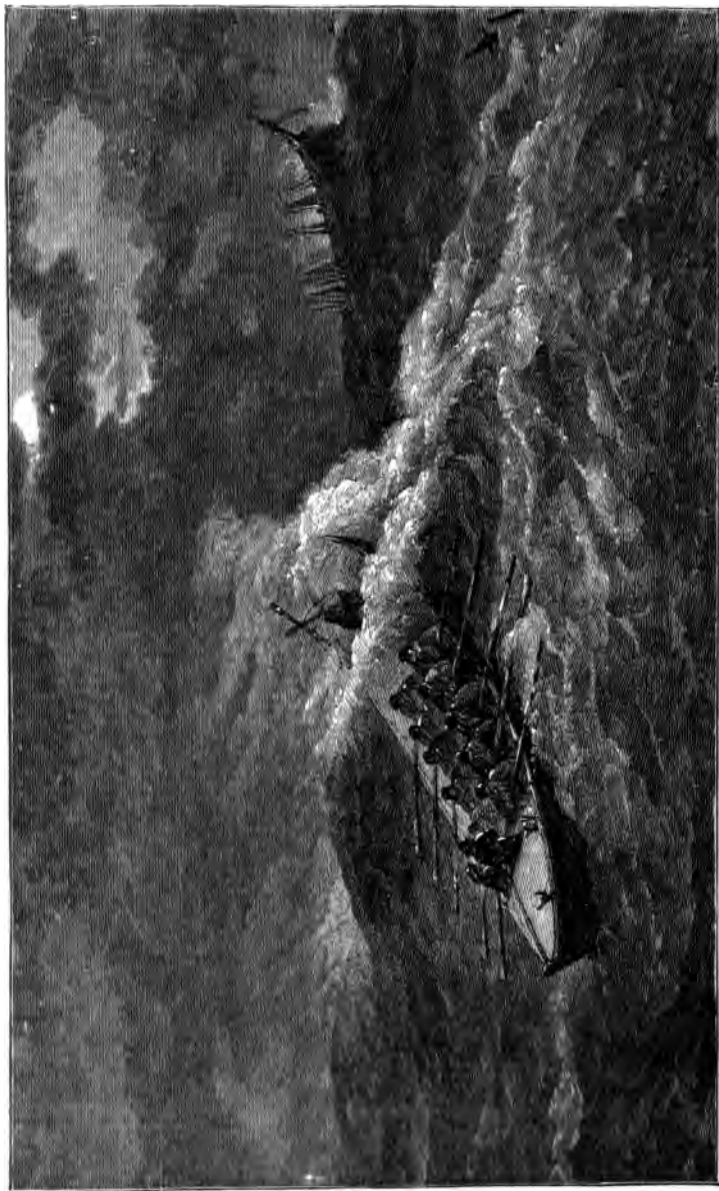
FISHGUARD, SOUTH WALES.—During a strong gale from the N.N.E., and in a heavy sea, on the 21st Feb., 1871, two vessels were at anchor in this roadstead. One of them was labouring very heavily; and at last she exhibited a signal of distress, which being observed from the shore, the Life-boat *Sir Edward Perrott* was at once taken off to her aid, and the splendid way in which the boat got through the broken sea was much admired by all. When she got alongside the vessel, she proved to be the schooner *Halswell*, of Bridgwater, and the master wished for assistance to get her into harbour; but this not being practicable, there not being then sufficient depth of water, he refused any other aid. The boat then went to the other vessel, the schooner *J. W. A.*, of New-quay, but her services were also declined by that crew: whereupon the Life-boat returned to the shore, and was placed in her house. The crew were about to disperse when the signal of distress was once more hoisted. Without

any hesitation, the boat was again got into the water, and after some little difficulty in getting her off the beach, they proceeded to the two vessels, and found the crews then wished to be taken ashore, as the sea had become heavier. Accordingly the men, ten in number, were taken into the Life-boat and safely landed.

On the 16th March it was blowing a whole gale from the N.N.E., accompanied by a terrific sea, when the Schooner *Ann Mitchell*, of Newquay, came into the bay in a distressed state, and after a narrow escape of being blown on the rocks, where all hands would inevitably have perished, the crew succeeded in running her on the Goodwick Sands. The Life-boat quickly went to the assistance of the crew of five men, who were found to be quite exhausted and helpless. With some difficulty they were saved by the Life-boat. The boat had not been long ashore before the schooner *Carnsew*, of Hayle, which was at anchor in the bay, parted both chains, and also went on to the Goodwick Sands. The Life-boat was again launched, and fortunately succeeded in saving the lives of this vessel's crew of four men. In both these services the Life-boat and crew behaved admirably.

ABERSOCH, NORTH WALES.—On the afternoon of the 5th Jan., 1872, information reached this place that a large ship, with her foremast gone, was in distress in Cardigan Bay, about eight miles to the southward of Pencilan. The wind was blowing very strong at the time, with terrific showers and squalls, and a very heavy sea was running. Nevertheless the Abersoch Life-boat *Mabel Louisa*, was most promptly got out and launched, and in about three hours she succeeded in reaching the vessel, which proved to be the ship *Ireland*, of Liverpool, 975 tons, bound to that port with a valuable cargo of rice and cotton. It afterwards appeared that on New Year's Day she had been abandoned by the master and crew, all of whom were landed at Cardiff and Newport. At that time the weather was very bad, and she was said to be in a most perilous condition, the cargo having shifted, and there being a quantity of water

in her hold. The vessel afterwards drifted along at the mercy of the wind and waves; and, on the weather moderating somewhat, two or three steamers took hold of her at different times, and tried hard to tow her into harbour, but failed to accomplish their object. Six men belonging to one of them—the *Egret*—managed to board the ship, but four out of the six abandoned her again at the command of their captain. The two others remained on board until she drifted into Cardigan Bay, when she was seen by the steamship *Rebecca*, of Portmadoc, which endeavoured to tow her from her dangerous position. By that time she was fast driving, broadside on, towards Sarn Badrig which was only about two or three miles under her lee. The moment the hawser became tight, however, it snapped, although it was a nearly new 6 or 7-inch Manilla rope. There was no other hawser available, and as the weather would not allow the ship to be boarded from the steamer, a gale of wind still blowing from the S.S.W., she could only remain by her for some time, until the Abersoch Life-boat was seen approaching, when the steamer took the boat in tow to the ship; and, after a long time, some of the crew of the Life-boat succeeded, though with considerable danger and difficulty, in getting on board the *Ireland*, the wind by that time having shifted to the N.W., although it blew with unabated violence. Another tow rope was then got to the steamer, but it quickly parted, and the *Rebecca* then proceeded to St. Tudwall Roads, where some vessels were lying at anchor; and from them she procured two fresh hawsers, one of which was then attached to the *Ireland* by means of which she was towed as far as the Roads; but before she could be brought to an anchor that hawser also parted. With the fourth one, however, she was eventually got to a place of safety. Meanwhile, those of the Life-boat crew who had boarded the ship, and others who were transferred to her from the *Rebecca*, had put things in order on board and set some sail; and with their help the vessel was safely anchored at six o'clock on the morning of the 6th January. She was ultimately towed to Liverpool by a steam-tug employed by the



Drawn by EDWARD DUNCAN, Esq.]

THE LIFE-BOAT NEARING THE WRECK.

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owners, after the water had been pumped out of her. It is hardly necessary to add that the crews of the steamer and the Life-boat, and those who had gone to her from the *Rebecca*, encountered considerable risk, besides which they underwent very great exertion and fatigue ; but, fortunately, their bravery and perseverance were rewarded by their saving from total loss a vessel and cargo which were admitted to be worth over £12,000. In addition, the two men of the *Egret* would certainly have been lost with the ship but for the services of the Life-boat.

Another excellent service was performed by the Aber-soch Life-boat, on the night of the 23rd November, when she was the means, while the wind was blowing a furious gale from the W.S.W., at times approaching a hurricane, of saving the crew of four men from the schooner *Maria*, of Aberystwith, which had stranded on Castellmarch Beach. It was said that this was the worst weather the boat had ever been out in, and, owing to the heaviness of the gale, the very high sea that was running, and the darkness, it was not until three unsuccessful attempts had been made that the Life-boat was enabled to reach the wreck ; and while performing this gallant service, she was three times filled by the heavy seas, which were, however, speedily self-ejected through her patent relieving valves. The Life-boat was out all night engaged in this perilous work, she having been launched at nine o'clock in the evening, and not getting back to her station until six o'clock on the following morning.

HOLYHEAD.—About nine P.M. on the 1st Dec., 1867, the barque *Bayadere*, of Rouen, parted from her anchors, and struck on the rocks near the lighthouse, at Holyhead. It was blowing at the time a most terrific gale from the N. The *Princess of Wales* Life-boat was soon launched in the face of all difficulties—heavy sea and lee shore—and brought safely ashore the crew of twelve men. The vessel soon afterwards became a total wreck. The Life-boat then went out three separate times to the ship *Lydia Williams*, of Liverpool, which had sunk near

Salt Island, and brought thirty-four persons on shore. The crew of the ship were in the rigging, and among them a lady passenger, with an infant seven months old. After two trips, two men were found to have been left in the fore-rigging, so they again had to return. At 5 A.M. on the 2nd, the Life-boat was again manned, and went off to save the crew of the schooner *Seetland*, of Chester. The men were, however, saved by means of ropes from the breakwater. On this occasion the boat beat off in the most wonderful style to the breakwater, through some terrific squalls of snow and hail, her sailing powers proving very great. The last time the life-boat went off in reply to a signal of distress, she brought ashore seven persons from the schooner *Elizabeth*, of Liverpool, making fifty-three in all saved—a good twenty-four hours' work. Six separate times the boat was manned and did good service with her veteran coxswain, WILLIAM ROWLAND.

NEW BRIGHTON, NEAR LIVERPOOL.—On the 26th Sept., 1869, the barque *Empress*, of Prince Edward's Island, bound thence from Liverpool, with a general cargo, struck on Taylor's Bank, in Liverpool Bay. There was a heavy N.W. wind blowing, and a strong tide running. The tubular Life-boat *Willie and Arthur* put off under canvas, in reply to the signals of distress from the ship, but owing to the strength of the tide and wind, was unable at first to fetch the vessel. The steam-tug *Rock*, however, took the Life-boat in tow, and she was soon alongside the wreck. The Life-boat then took off eighteen persons, consisting of the master, crew of fourteen men, two passengers, and one "stowaway," who were all afterwards transferred to the steamer, and conveyed to Liverpool. The vessel subsequently became a total wreck.

The tubular Life-boat was likewise the means of rendering good service to another shipwrecked crew on the 19th October. During the previous night a very severe gale had swept over Liverpool and its neighbourhood, and, although it abated the next morning, the sea continued very rough, dashing over some of the lowest piers at the entrance to the port. About seven o'clock the

schooner *Elephant*, of Ulverstone, struck on Taylor's Bank, and became a total wreck. One of the Life-boats belonging to the Liverpool Dock Trustees, had the first intimation of the wreck, and went down to the Sand Bank, the *Willie and Arthur* afterwards following in tow of the steam-tug *Resolute*, and arriving at the spot nearly an hour after the Liverpool boat, which, however, had not been able to approach the wreck. The tubular Life-boat being taken to windward by the steamer, was slipped, and at once proceeded to the rescue of two men who were seen in the rigging. They saved one, and the coxswain of the Life-boat was in the act of ascending the rigging to save the other, who was the master, when the foremast, to which he was lashed, went overboard, and being held by the rigging, it could not float, and the poor fellow belonging to the schooner was unfortunately drowned. It was reported that great credit was due to the captain of the steamer for his skill in putting the tubular boat into position for getting alongside the wreck.

PORT LOGAN, N.B. — On the night of the 16th Dec., 1867, the barque *Strathleven*, of Glasgow, was wrecked, during a strong wind W. by N., half a mile North of Float Bay, about seven miles from Port Logan. The vessel was under double-reefed topsails when she struck, and the night was very dark. An attempt was made to communicate with the land, and a boat was lowered for that purpose, but it immediately broke adrift with two men in it, who were thrown upon the rocks, and after great exertion, succeeded in gaining the shore. Information was at once forwarded to Port Logan for the *Edinburgh and R. M. Ballantyne* Life-boat, which was quickly launched and on her way to the wreck. She found the shipwrecked crew, fifteen in number, clinging to the rigging on the starboard quarter, which was nearly under water, with the sea constantly washing over them. They were safely got into the life-boat, and brought ashore in a very exhausted state early in the morning. They said they could not have held on much longer, and

expressed great gratitude for the services of the Life-boat, and spoke in high terms of the manner in which she was handled.

[Mr. BALLANTYNE himself relates a most remarkable coincidence that occurred in connection with this service. The Life-boat was exhibited in Glasgow on the 16th December, before being sent to her station, and the wife of the master of the *Strathleven*, accompanied by her children, went to see the boat and put an offering into the subscription-box. *Exactly* one year after, as above narrated, the captain's vessel was wrecked, and on the following morning he and his crew were providentially rescued by the very boat which his wife had contributed to support !]

MONTROSE, N.B.—The ketch *Friendship*, of Goole, having sprung a leak off St. Abb's Head, would not steer and could not fetch a port, and she consequently drifted on the Annat sandbank, off Montrose, early on the morning of the 15th Jan., 1871. The Life-boat *Mincing-lane* went off through a heavy surf and rescued the crew of three men, who would in all probability have been lost had they attempted to land in their own boat. As it was, on account of the darkness of the night, it took the Life-boat men some time before they could discover the wreck,—and such was the strength of the wind and tide, that the Life-boat could not be pulled back through the surf, but had to be beached about a mile from the Boat-house.

Again, on the 31st January, one of the most gallant of the many gallant Life-boat services that are from time to time recorded took place in the neighbourhood of Montrose. For two days previously a strong gale had blown from the south-east, and a tremendous sea was breaking everywhere on the coast. At daybreak a partially dismasted schooner, which turned out to be the *Dania*, of Æroskjøbing, in Denmark, was observed to be at anchor in Bervie Bay, about twelve miles north of Montrose, in a very dangerous position. The rocket apparatus from the nearest coastguard station was soon on the spot, but the

vessel being too far from the shore to be reached by it, a telegram was at once sent to Montrose for the Life-boat and a steam-tug to come to the aid of the vessel and crew. As soon as practicable, the Life-boat *Mincing-lane*, was launched, manned by the well-known and skilled Ferryden fishermen, and was towed to the harbour's mouth, when it was found that the sea on the bar was too heavy to admit of the steamer being taken through it. After some consultation, and an only natural slight hesitation, the coxswain and crew of the Life-boat determined at all risks to cross the bar, if possible, and perform the service without any other aid than that of their own strong arms and wills, and off they went, followed by the anxious gaze and hopes of the spectators on shore. The sea on the bar is said to have been terrific, yet as each broke heavily over the boat, one throwing her almost perpendicularly, she, nevertheless, steadily surmounted them, and when over the heavy lines of surf on the bar her oars were taken in and sail set, and in an hour more she had reached the distressed ship. Owing to the heavy sea it was still a work of no slight difficulty to get her crew on board, who, standing on the stern, had to avail themselves of the brief moments when the boat was raised high on the summit of a wave, and thus, one by one, they jumped into her, and all got safely on board. It had been thought that the Life-boat would then have had to run to Stonehaven, ten miles further north, with the five rescued men; but fortunately the wind had veered more to the east, and they were enabled to return to Montrose, to the no slight joy and relief of those who, with anxious and wistful eyes, had been watching for her return. The Life-boat's crew were loud in their praises of the behaviour of the Life-boat, both under sail and oars; yet what would be the value of even such boats without the daring courage and skilful management of such men? When the character of this service is considered, against the specially dangerous seas which in on-shore gales of wind break wildly on the bars of all rivers on so exposed a coast, and the long distance of twelve miles on a rocky lee shore, which had to be traversed, it will be readily

conceived that it would be difficult to speak in too high terms of the noble courage and hardihood of the brave fellows by whom it was performed.

SKERRIES, CO. DUBLIN.—On the 14th Nov., 1858, the Austrian brig, *Tregiste*, 333 tons, of Trieste, anchored for shelter, during a terrific gale from the east, under Lambay Island, near Dublin. On the 15th she had dragged her anchors nearly half way across the sound between the island and the main; and, being then in imminent danger of driving on shore on the Portrane Rocks, by direction of the English pilot on board, her masts were cut away. The Skerries Life-boat having been sent from that place by land on her transporting carriage, was, at about 2 P.M., launched from the strand south of the town of Rush, in charge of chief boatman of Coastguard, JOSEPH CLARKE as coxswain, HENRY ALEX. HAMILTON, Esq., Honorary Secretary to the Institution, at Skerries, also going off in her. As the boat got out into deep water, she shipped several very heavy seas; "twice," says Mr. HAMILTON, "many of us were nearly washed out of the boat, the 'green water' falling at these times unbroken on the top of us." After two hours' fruitless exertion to reach the vessel, the boat's crew were so fatigued that it became necessary to return to the shore, lest the Life-boat herself should be driven on the rocks. Mr. HAMILTON accordingly directed the coxswain to bear up for the entrance of Rogerstown Stream, where, after running considerable risk of broaching to in crossing the bar, she safely arrived at 5.30 P.M. As it was evident that the Life-boat could not be rowed to the ship where she then lay, until the wind had somewhat abated, Mr. HAMILTON decided to wait for the first lull, hoping to reach her, and in the interim to watch her night and day, keeping the crew together in readiness to man the Life-boat again at a moment's notice, in the event of the ship's cables parting and her being driven on shore, or of her further dragging her anchors until much nearer to it. The boat was kept afloat within the river, and her crew located in the Coast-

guard watch-house, Mr. HAMILTON providing them with food, and sending for their dry clothes. The hull rode out the gale through the night, the wind and sea remaining as violent as before. On the morning of the 16th, a large steamer which had been sent for to Holyhead, bore down towards the distressed vessel, in order, if possible, to take the men off the hull; but as the sea broke completely over her several times, she was unable to get sufficiently near to her, and was compelled to give up the attempt, and to bear up for Kingstown Harbour, slipping her cables and leaving her anchors behind. As the second night set in, the crew of the ship were seen to be working hard at the pumps, but the gale continued and the sea broke still more heavily than before. At 3 o'clock on the morning of the 17th, the wind began to lessen, and preparations were made for another attempt to reach the ship. At 4.30 A.M., the Life-boat again put off with Mr. HAMILTON and the same crew, none of whom had left the spot since their first attempt on the 15th. For the first hour the sea broke with the same violence over the boat that it had done on the former occasion; but then being through the worst of the heavy seas, at the end of two hours and a-half the dismantled vessel was reached, and the crew and the pilot, thirteen in all, were safely taken in by twos and threes, as opportunity offered, over the vessel's stern, and all safely landed at Rogerstown at 9.30 A.M.

COURTOWN, IRELAND.—Early on the morning of the 13th of Jan., 1872, intelligence was received that a vessel was showing signals of distress off this place. On the Life-boat *Alfred and Ernest* being taken to the spot, it was found that the ship *Idaho*, of Bath, U.S., 1226 tons, bound from Liverpool to New Orleans, with a general cargo, had stranded near the harbour, she having previously gone on the Lucifer Shoals. At the entreaty of the master, the Life-boat brought ashore his wife and child; and nine of the crew also came into the boat on the same occasion. In two other trips she afterwards landed, through a very heavy sea, the master and the remainder

of those on the vessel, being twenty-three lives in all, the boat was fortunately enabled to save from the wreck. The boat had to make three trips from the shore to the ship, as the master only sent part of his crew each time, and consequently she had to be launched three separate times through the surf.

The American ambassador afterwards addressed a communication to the Institution, through the Foreign Office, in which he stated :—

“I am instructed to express the grateful acknowledgments of the President of the United States, for the valuable assistance rendered by the crew of the *Alfred and Ernest*, to those unfortunate seamen, and to request that an expression of the high appreciation entertained by my Government of the humane and generous conduct of the rescuing crew may be communicated to them.”

TRAMORE, IRELAND.—On Jan. 12th, 1868, a large iron ship, the *Oasis*, of Liverpool, struck on the rocks west of the Metal Man, Newtown Head, in a south-easterly gale. The Cambridge University Life-boat, *Tom Egan*, was launched, and reached the wreck about midnight. Twenty men were taken off on the seaward side of the vessel, which was found to be the most suitable. The wind increased very much, and the work of reaching the shore was difficult. In this situation the drogue was of great advantage. Captain J. W. PIM, the then Hon. Secretary of the Tramore Branch, joined the crew as a volunteer, and showed conspicuous gallantry. At daybreak, it was discovered that a man still remained in the rigging, and the Life-boat was again despatched to rescue him. He was on the cross-trees of the foretopmast, where he lay motionless, and was only roused by the cheers of the spectators on shore. In this crisis it was necessary to board the vessel, and this was done by JAMES NORRIS, who succeeded in catching a rope that was hanging from the bowsprit. He lashed a rope round the body of the sailor, and threw one end to the Life-boat crew and kept the other himself. He then threw him into the water, from

which he was soon hauled into the Life-boat. NORRIS's presence of mind and success were greeted with deafening cheers by the spectators. He got safely back to the boat, which then returned to land. Seven of the crew, who had launched the ship's Life-boat soon after she struck, got safely into Slade Harbour. The captain of the vessel had been washed overboard and drowned before the Life-boat was got out, and two or three other men who were sick, were drowned in their berths.



LIST OF THE LIFE-BOATS OF THE NATIONAL LIFE-BOAT INSTITUTION AND THEIR SERVICES.

THE following is a list of the Life-boat Stations of the NATIONAL LIFE-BOAT INSTITUTION, with the names of the present boats, and the particulars of the Services rendered up to the present time at each Life-boat Station. It will be observed that in some cases the Life-boats have had no opportunity of rendering any service—some on account of having only just been sent to their Stations—and others because no occasion has occurred so far for their services.

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
ENGLAND.			
NORTHUMBERLAND.			
Berwick-on-Tweed .	<i>Albert Victor</i>	18	72
Holy Island—No. 1	<i>Grace Darling</i>	10	18
„ No. 2	<i>Bombay</i>	—	—
North Sunderland .	<i>Joseph Anstice</i>	8	18
Boulmer	<i>Robin Hood of Nottingham</i> .	8	17
Alnmouth	<i>John Atkinson</i>	3	9
Hauxley	<i>Algernon & Eleanor</i>	19	90
Cresswell	<i>Old Potter</i>	—	—
Newbiggin	<i>W. Hopkinson, of Brighthouse</i> .	28	156
Blyth—No. 1 . . .	<i>Salford</i>	2	8
„ No. 2	<i>Thomas Carr</i>	—	—
Cullercoats	<i>Palmerston</i>	19	37
Tynemouth—No. 1.	<i>Constance</i>	19	23
„ No. 2	<i>Forester</i>	11	17
DURHAM.			
Whitburn	<i>Thomas Wilson</i>	34	177
Sunderland—No. 1	<i>Good Templar</i>	—	—
„ No. 2	<i>Good Will</i>	—	—
„ No. 3	<i>Florence Nightingale</i>	1	—

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
DURHAM—<i>contd.</i>			
" No. 4	<i>John Foulston</i>	—	—
Seaham	<i>Sisters Carter, of Harrogate</i>	1	10
West Hartlepool	<i>Forester's Pride</i>	1	9
"	<i>James Davidson Shaw</i>	1	—
Seaton Carew	<i>Job Hindley</i>	14	76
YORKSHIRE.			
Middlesborough	<i>Crossley</i>	6	21
Redcar	<i>Burton-on-Trent</i>	13	50
Saltburn	<i>Appleyard</i>	2	—
Runswick	<i>Sheffield</i>	3	6
Upgang	<i>William Watson</i>	—	—
Whitby—No. 1	<i>Robert Whitworth</i>	12	72
" No. 2	<i>Harriott Forteath</i>	3	33
Scarborough	<i>Lady Leigh</i>	31	56
Filey	<i>Hollon</i>	24	61
Flamborough—No. 1	<i>Gertrude</i>	—	—
" No. 2	<i>S. Michael's, Paddington</i>	—	—
Bridlington	<i>John Abbott</i>	10	46
Hornsea	<i>B. Wood</i>	4	30
Withernsea	<i>Pelican</i>	11	27
LINCOLNSHIRE.			
Cleethorpes	<i>Manchester Unity</i>	7	13
Donna Nook	<i>North Briton</i>	15	66
Theddlethorpe	<i>Dorinda & Barbara</i>	8	46
Sutton	<i>Birmingham</i>	10	13
Chapel	<i>Godsend</i>	4	4
Skegnes	<i>Herbert Ingram</i>	14	34
NORFOLK.			
Hunstanton	<i>Licensed Victualler</i>	10	41
Brancaster	<i>Joseph and Mary</i>	—	—
Wells	<i>Eliza Adams</i>	7	27
Blakeney	<i>Hettie</i>	16	53
Sheringham	<i>Duncan</i>	4	9
Cromer	<i>Benjamin Bond Cabbell</i>	9	28
Mundesley	<i>Grocers</i>	9	41
Bacton	<i>Recompense</i>	8	51
Hasborough	<i>Huddersfield</i>	8	33
Palling—No. 1	<i>Parsee</i>	20	85
" No. 2	<i>British Workman</i>	3	12

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
NORFOLK—<i>contd.</i>			
Winterton	<i>Ann Maria</i>	10	42
Caister—No. 1 . . .	<i>Birmingham, No. 2</i>	99	413
„ No. 2	<i>Boys</i>	16	59
Yarmouth—No. 1 . .	<i>Mark Lane</i>	49	144
„ No. 2	<i>Duff</i>	27	157
SUFFOLK.			
Gorleston	<i>Leicester</i>	5	13
Corton	<i>Husband</i>	1	3
Lowestoft—No. 1 . .	<i>Letitia</i>	38	229
„ No. 2	<i>George</i>	4	1
Pakefield—No. 1 . .	<i>Sisters</i>	41	124
„ No. 2	<i>Henry Burford, R.N.</i>	1	11
Kessingland—No. 1 .	<i>Bolton</i>	6	16
„ No. 2	<i>Grace and Lally, of Broad Oak</i> . .	5	14
Southwold—No. 1 . .	<i>London Coal Exchange</i>	14	69
„ No. 2	<i>Quiver, No. 2</i>	1	8
Dunwich	<i>John Keble</i>	—	—
Thorpeness	<i>Ipswich</i>	22	17
Aldborough	<i>George Hounsfield</i>	13	45
KENT.			
Margate	<i>Quiver, No. 1</i>	33	55
Kingsgate	<i>Thomas Chapman</i>	8	7
Broadstairs	<i>Samuel Morrison Collins</i>	27	19
Ramsgate	<i>Bradford</i>	111	271
North Deal	<i>Van Kook</i>	40	60
Walmer	<i>Centurion</i>	40	74
Kingsdowne	<i>Sabrina</i>	26	60
Dover	<i>Royal Wiltshire</i>	5	12
New Romney	<i>Dr. Hatton</i>	22	53
Lydd, Dungeness . .	<i>David Hulett</i>	1	3
SUSSEX.			
Rye	<i>Arthur Frederick</i>	21	37
Winchelsea	<i>Storm Sprite</i>	21	63
Hastings	<i>Ellen Goodman</i>	4	4
Eastbourne	<i>Mary Stirling</i>	6	9
Newhaven	<i>Elizabeth Boys</i>	11	14
Brighton	<i>Robert Raikes</i>	3	—
Shoreham	<i>Ramonet</i>	1	—
Worthing	<i>Jane</i>	6	6

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
<i>SUSSEX—contd.</i>			
Selsey	<i>Four Sisters</i>	11	18
Chichester Harbour	<i>Undaunted</i>	5	—
<i>HAMPSHIRE.</i>			
Hayling Island	<i>Olive Leaf</i>	5	32
<i>ISLE OF WIGHT.</i>			
Bembridge	<i>City of Worcester</i>	2	—
Brighstone Grange	<i>Rescue</i>	17	173
Brooke	<i>George and Anne</i>	8	29
<i>ALDERNEY.</i>			
St. Anne	<i>Mary and Victoria</i>	—	—
<i>GUERNSEY.</i>			
St. Samson's	<i>Louisa Hall</i>	—	—
<i>DORSET.</i>			
Poole	<i>Manley Wood</i>	7	51
Chapman's Pool	<i>George Scott</i>	2	—
Kimeridge	<i>Mary Heape</i>	1	15
Weymouth	<i>Agnes Harriet</i>	1	—
Lyme Regis	<i>William Woodcock</i>	9	26
<i>SOUTH DEVON.</i>			
Sidmouth	<i>Rimington</i>	2	19
Exmouth	<i>Victoria</i>	8	10
Teignmouth	<i>China</i>	22	41
Brixham	<i>City of Exeter</i>	1	1
Salcombe	<i>Rescue</i>	1	—
Plymouth	<i>Clemency</i>	13	60
<i>CORNWALL.</i>			
Looe	<i>Oxfordshire</i>	8	11
Fowey	<i>Rochdale</i>	10	46
Mevagissey	<i>South Warwickshire</i>	2	6
Portloe	<i>Gorfenkle</i>	—	—
Falmouth	<i>City of Gloucester</i>	5	—
Porthoustock	<i>Mary Ann Story</i>	2	13
Cadgwith	<i>Western Commercial Traveller</i>	12	19

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
CORNWALL— <i>contd.</i>			
Lizard	<i>Anna Maria</i>	12	17
Mullion	<i>Daniel F. Draper</i>	4	3
Porthleven	<i>Agar Robartes</i>	2	16
Penzance	<i>Richard Lewis</i>	16	69
Sennen Cove	<i>Cousins William and Mary Anne, of Bideford.</i>	3	2
SCILLY ISLANDS.			
St. Mary's	<i>Henry Dundas.</i>	—	—
CORNWALL.			
St. Ives	<i>Covent Garden</i>	21	56
Hayle	<i>Isis</i>	5	21
New Quay	<i>James and Elizabeth</i>	9	46
Padstow	<i>Albert Edward</i>	25	106
Port Isaac	<i>Richard and Sarah</i>	2	11
Bude	<i>Elizabeth Moore Garden</i>	13	16
NORTH DEVON.			
Clovelly	<i>Alexander and Matilda Boetseur</i>	4	21
Appledore—No. 1	<i>Hope</i>	13	60
„ No. 2	<i>Mary Ann</i>	2	—
Braunton	<i>George and Catherine</i>	9	47
Morte Bay	<i>Grace Woodbury</i>	—	—
Ilfracombe	<i>Broadwater</i>	8	29
Lynmouth	<i>Henry</i>	2	1
SOMERSET.			
Watchet	<i>Joseph Somes</i>	—	—
Burnham,	<i>Cheltenham.</i>	5	15
SOUTH WALES.			
GLAMORGANSHIRE.			
Penarth	<i>George Gay</i>	16	24
Porthcawl	<i>Chafyn Grove</i>	18	26
Swansea	<i>Wolverhampton</i>	18	57
CARMARTHENSHIRE.			
Pembrey	<i>Stanton Meyrick, of Pimlico</i>	12	27
Carmarthen Bay	<i>City of Manchester.</i>	12	44

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LIST OF LIFE-BOATS AND THEIR SERVICES—continued.

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
PEMBROKESHIRE.			
Tenby	<i>Florence</i>	21	56
Milford	<i>Katherine</i>	2	19
Solva	<i>Charles and Margaret Egerton</i>	2	4
St. David's	<i>Augusta</i>	6	13
Fishguard—No. 1	<i>Sir Edward Perrott</i>	21	79
„ No. 2	<i>Fraser</i>	1	—
CARDIGANSHIRE.			
Cardigan	<i>John Stuart</i>	13	39
Newquay	<i>Nelson</i>	7	—
Aberystwith	<i>Evelyn Wood</i>	13	16
NORTH WALES.			
MERIONETHSHIRE.			
Aberdovey	<i>Royal Berkshire</i>	17	36
Barmouth	<i>Ellen</i>	26	90
CARNARVONSHIRE.			
Portmadoc	<i>John Ashbury</i>	26	71
Abersoch	<i>Mabel Louisa</i>	11	20
Porthdinllaen	<i>Cotton Sheppard</i>	20	33
ANGLESEY.			
Llanddwyn	<i>John Gray Bell</i>	16	90
Rhosneigr	<i>Thomas Lingham</i>	1	—
Rhoscolyn	<i>Thomas Boys of Brighton</i>	8	24
Holyhead	<i>Princess of Wales</i>	58	274
Cemaes	<i>Sophia</i>	12	17
Bull Bay	<i>Eleanor</i>	3	8
Moelfre	<i>Lady Vivian</i>	16	50
Penmon	<i>Christopher Brown</i>	14	35
CARNARVONSHIRE.			
Orme's Head	<i>Sister's Memorial</i>	17	24
DENBIGHSHIRE.			
Llanddulas	<i>Henry Nixon—No. 2.</i>	—	—
FLINTSHIRE.			
Rhyl (Tubular)	<i>Morgan</i>	25	32

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
CHESHIRE.			
New Brighton—No. 1	<i>Willie and Arthur</i>	30	131
„ No. 2	<i>Lily</i>	14	20
LANCASHIRE.			
Southport	<i>Eliza Fernley</i>	28	86
Lytham	<i>Wakefield</i>	51	119
Blackpool	<i>Robert William</i>	15	67
Fleetwood	<i>Edward Wasey</i>	15	55
Piel	<i>Commercial Traveller—No. 1</i>	3	16
CUMBERLAND.			
Whitehaven	<i>Elizabeth</i>	5	4
Maryport	<i>Henry Nixon—No. 1</i>	9	25
Silloth	<i>Angela & Hannah</i>	6	1
ISLE OF MAN.			
Ramsey	<i>Two Sisters</i>	14	53
Douglas—No. 1	<i>Manchester & Salford Sunday Schools.</i>	5	—
„ No. 2	<i>John Turner-Turner</i>	—	—
Castletown	<i>Commercial Traveller—No. 2</i>	15	39
SCOTLAND.			
KIRKCUDBRIGHT.			
Kirkcudbright	<i>Helen Lees</i>	7	17
WIGTONSHIRE.			
Whithorn	<i>Charlie Peck</i>	3	3
Port Logan	<i>Edinburgh & R. M. Ballantyne</i>	2	15
AYRSHIRE.			
Ballantrae	<i>William and Harriot</i>	—	—
Girvan	<i>Earl of Carrick</i>	10	33
Ayr	<i>Glasgow Workman</i>	7	32
Troon	<i>Mary Sinclair</i>	1	5
Irvine	<i>Isabella Frew</i>	5	17
Ardrossan	<i>Fair Maid of Perth</i>	3	18
ISLE OF ARRAN.			
Kildonan	<i>Hope</i>	—	—

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
ARGYLLSHIRE.			
Campbeltown . . .	<i>Lord Murray</i>	8	35
Southend . . .	<i>John R. Ker</i>	1	—
CAITHNESS-SHIRE.			
Thurso	<i>Charley Lloyd</i>	8	67
ORKNEYS.			
Longhope . . .	<i>Dickinson Edleston</i>	—	—
Stromness . . .	<i>Saltaire</i>	1	5
ELGINSHIRE.			
Lossiemouth. . .	<i>Bristol & Clifton</i>	9	28
BANFFSHIRE.			
Buckie	<i>James Sturm</i>	4	66
Banff	<i>John and Sarah</i>	9	40
ABERDEENSHIRE.			
Fraserburgh . . .	<i>Charlotte</i>	24	38
Peterhead . . .	<i>People's Journal—No. 1</i> . . .	21	28
KINCARDINESHIRE.			
Stonehaven . . .	<i>Star</i>	2	—
FORFAR.			
Montrose—No. 1 .	<i>Mincing Lane</i>	15	48
„ No. 2 . . .	<i>Roman Governor of Caer Hân</i>	3	3
Arbroath. . . .	<i>People's Journal—No. 2</i> . . .	4	10
Buddon Ness . . .	<i>Eleanora</i>	10	30
Broughty Ferry . .	<i>Mary Hartley</i>	20	25
FIFESHIRE.			
St. Andrew's . . .	<i>Ladies' Own</i>	18	28
Anstruther . . .	<i>Admiral FitzRoy</i>	9	9
HADDINGTONSHIRE.			
North Berwick . . .	<i>Freemason</i>	7	21
Dunbar	<i>Wallace</i>	3	5

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
IRELAND.			
LONDONDERRY.			
Greencastle . . .	<i>Mary Annette</i>	11	7
ANTRIM.			
Portrush	<i>Laura Countess of Antrim</i> . .	9	36
DOWN.			
Groomspoint . . .	<i>Florence</i>	3	1
Ballywalter . . .	<i>Admiral Henry Meynell</i> . .	3	5
Tyrella	<i>Tyrella</i>	11	26
Newcastle	<i>Reigate</i>	19	45
LOUTH.			
Dundalk	<i>Stockport Sunday Schools</i> . .	21	37
Drogheda—No. 1 . .	<i>Old George Irlam, of Liverpool</i>	18	44
„ No. 2	<i>John Rutter Chorley</i>	2	6
DUBLIN.			
Skerries	<i>Laura Platt</i>	12	34
Rogerstown	<i>Tileries Tunstall</i>	—	—
Howth	<i>Clara Baker</i>	20	51
Poolbeg	<i>G. V. Brooke</i>	4	6
Kingstown	<i>Princess Royal</i>	6	—
Greystones	<i>Sarah Tancred</i>	2	4
WICKLOW.			
Wicklow	<i>Robert Theophilus Garden</i> . .	23	18
Arklow	<i>Out-Pensioner</i>	55	118
WEXFORD.			
Courtown	<i>Alfred and Ernest</i>	12	59
Cahore	<i>Sir George Bowles</i>	33	41
Wexford—No. 1 . .	<i>Ethel Eveleen</i>	22	45
„ No. 2	<i>Civil Service</i>	40	117
Carnsore	<i>Iris</i>	11	57
Duncannon	<i>Richard and Anne</i>	2	—
WATERFORD.			
Tramore	<i>Tom Egan</i>	15	79
Dungarvan	<i>Christopher Ludlow</i>	11	70
Ardmore	<i>Salomon</i>	1	7

LIST OF LIFE-BOATS AND THEIR SERVICES—*continued.*

STATION.	Name of Present Life-boat.	Number of Launches to distressed Vessels.	Number of Lives Saved.
CORK.			
Youghal	<i>William Beckett of Leeds</i>	5	19
Ballycotton	<i>St. Clair</i>	9	21
Queenstown	<i>Quiver—No. 3</i>	2	—
Courtmacsherry	<i>City of Dublin</i>	4	—
KERRY.			
Valentia	<i>Mary</i>	3	—



CHAPTER XVI.

THE ORGANISATION OF LIFE-BOAT STATIONS—LOCAL COMMITTEES AND HONORARY SECRETARIES — COXSWAINS AND CREWS — REWARDS GRANTED BY THE INSTITUTION—REPORTS FROM LIFE-BOAT STATIONS — GIFT LIFE-BOATS — RESTORATION OF THE APPARENTLY DROWNED—MANAGEMENT OF OPEN BOATS—SAFETY FISHING BOATS—BAROMETERS—SHIPS' LIFE-BOATS — LIFE-BELTS FOR SEAMEN—FOREIGN LIFE-BOAT SOCIETIES — PROGRESS OF THE NATIONAL LIFE-BOAT INSTITUTION—ITS NEED OF CONTINUED SUPPORT.

THE boats of the NATIONAL LIFE-BOAT INSTITUTION are kept in charge of paid coxswains, under the general superintendence of Local Honorary Committees of residents in the several localities. The Institution is largely indebted to the valuable and zealous co-operation afforded to it by its Local Branch Committees and their Honorary Secretaries, constituting as they do so important a portion of the machinery for the supervision of its numerous Life-boat Establishments.

Each boat has its appointed coxswain at a salary of £8, and an assistant at £2, a year. The crew consists, in addition, of a bowman, and as many boatmen as the boat pulls oars. The members of the volunteer crews are enrolled, and, wherever practicable, at least double the number of men required should be so. Such men are mostly resident boatmen, fishermen, or Coastguardmen. Anything like unseemly rivalry on the part of the crews of Life-boats has of course to be repressed ; but

it happens occasionally that the usual skilful men are not to be procured at the moment when the boat's services are required, some perhaps being ill, others at sea, or engaged in avocations at a distance—in such cases the first well-known oarsman who arrives at the scene of action and secures a Life-belt, has at once his claim acknowledged to a seat in the boat. It is certainly remarkable to observe how unflinching and ceaseless has been the emulation of the men on these occasions, notwithstanding that it is manifest they will sometimes have to encounter frightful peril and exposure.

On every occasion of going afloat to save life, the coxswain and each man of the crew receive alike from the funds of the Institution (whether successful or not) 10s., if by day, and £1, if by night; and 4s. each for every time of going afloat for exercise. The rewards for saving life are increased on special occasions when unusual risk or exposure has been incurred. Besides pecuniary rewards the Society also grants its Gold and Silver Medals and Thanks inscribed on Vellum for gallant deeds by Life-boats and other means in Saving Life from Wrecks on our coasts.

The Medal of the Institution is granted as a permanent honorary acknowledgment of brave services; and, considering the Royal and National character of the Society, its decoration, recognised as it is by the Government, is highly appreciated and coveted by men of all ranks and conditions of society, as the emblem of a noble act—that of saving human life. (Appendix, p. 171.)

The boats are expected, in accordance with the Life-boat Regulations, to go afloat once each quarter. If, as may happen in the summer months, rough weather does not occur, a crew may still with advantage be exercised in rowing together; and thus the sound and tight

condition of the boat herself, as well as the perfectness of her gear and fittings are ascertained.

At the end of each quarter the Local Committee are convened, when, amongst other business, the Quarterly Report of the exercise and present condition of the Life-boat Establishment is carefully considered, and afterwards forwarded to the Parent Institution.

The Report contains a note of the expenses of the Life-boat Establishment during the quarter, and answers to the following queries :—

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Date of exercising the Life-boat ? 2. State of the Wind, Weather, and Sea ? 3. How long was the Boat out on trial ? If the sea was heavy, how did she behave ? 4. Was all the usual gear in the boat ? 5. Had the Crew their Life-belts on ? 6. State if any and what repairs are wanted, or defects to be made good, in the Boat, Carriage, House, or Gear, with an estimate of the cost ? | <ol style="list-style-type: none"> 7. Have the Crew been paid for exercising, four shillings each man. And the Coxswains their quarter's salaries, £2 10s. ? 8. Are the Instructions for Restoring Suspended Animation, and the Life-boat Regulations, posted up in the Boat House ? 9. Has the Ventilation of the Boat and Boat-house been carefully attended to during the Quarter ? 10. Remarks, if any. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

After the boat has been out on service a return is furnished to the Institution by the Local Honorary Secretary, giving the particulars of the case in answer to the following questions :—

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Name of Vessel, and where belonging to ? 2. Name of Master, and of Owners ? 3. Rig, Tonnage, Number of Crew, and Persons on board the Vessel ? 4. Where from ? Where bound to ? What cargo ? or in Ballast ? | <ol style="list-style-type: none"> 6. Probable Value of Ship and Cargo ? 7. Wind, Weather, and State of Sea ? 8. Time of Day ? State of Tide ? 9. Exact spot where Wrecked ? 10. Number of Lives Saved ? 11. Number of Lives Lost ? |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">12. Supposed cause of Wreck ?13. Was it a total Wreck, or Stranded, or Sunk ?14. Time of launching Life-boat ?15. Time of reaching Wreck ?16. Time of returning ashore ?17. Did the Boat behave well ?18. By whose authority was she ordered out ?19. Was any Damage done to the Boat ? Extent of Repairs required ? | <ul style="list-style-type: none">20. State the Names of the Crew of the Life-boat on this occasion, and number of times these Men have been off in a Life-boat to a Wreck ; noting any special case of individual exertion.21. Amount, if any, of Reward received locally or from elsewhere.22. Amount, if any, of Salvage.23. Remarks, &c. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

A reward of 7*s.* is given to the man who first brings tidings of a Wreck at such a distance along the coast as not to be in sight of a Coastguard Station or other look-out.

Full instructions are given to the coxswain for the management of his boat and crew ; the boat is always to be kept on its carriage in the Boat House ; there are to be three keys to the Boat House, that the missing of any one may not cause delay ; the coxswain is to assemble his crew by flags during the day, and by guns in the night ; he is to keep a watch on the weather and make partial preparations for usefulness whenever a storm seems brewing ; and he is to familiarise himself with the method for the recovery of persons apparently drowned, in case the boat brings ashore, as she sometimes does, a man more dead than alive. The Life-boat is never to interfere with the private enterprises of the local boatmen, except in cases of emergency and at their own expressed desire.

On boarding Wrecks the preservation of life is the sole consideration. Should any goods or merchandise be brought into the Life-boat, contrary to the coxswain's remonstrance, his first business is to throw them overboard.

Life-boats, like everything else, wear out and have to be replaced by new ones. In such cases framed metal Tablets are put up in the Boat Houses, recording fully the services of the previous Life-boat at the station; and thus local interest is perpetuated in the good work, in addition to records of the munificence of the donors. The following is a copy of a recent tablet of this class:—

SOUTHPORT LIFE-BOAT STATION

OF THE

ROYAL NATIONAL LIFE-BOAT INSTITUTION.

The first Life-boat placed on this Station by the ROYAL NATIONAL LIFE-BOAT INSTITUTION was sent here in 1861. It was presented to the Institution by JAMES KNOWLES, Esq., of Eagley Bank, near Bolton, and was named the *Jessie Knowles*.

In 1873 that Life-boat was replaced by another, after having saved 75 lives from the following wrecked vessels.

		Lives saved.
20th October, 1862,	Ship <i>Annie E. Hooper</i> , of Baltimore.	4
20th September, 1863,	Barque <i>St. Lawrence</i> , of Liverpool— saved vessel and crew	14
31st October, ,,	Barque <i>Tamworth</i> , of Skien, Norway	17
4th December, ,,	Ship <i>David White Clinton</i>	8
20th October, 1864,	Sloop <i>Liver</i> , of Carnarvon	3
2nd February, 1867,	Sloop <i>Perseverance</i> , of Liverpool	2
13th March, 1868,	Ship <i>Nictaux</i> , of St. John's, N.B.— rendered assistance.	.
8th August, 1869,	Schooner <i>William Wallace</i> , of Dundalk saved vessel and crew	5.
15th December, 1870,	Schooner <i>Jessie</i> , of Gourrock	5
26th August, 1871,	Barque <i>Times</i> , of Liverpool	17
14th December, 1871,	Barque <i>Marseille</i> —remained by vessel.	—
Total lives saved		75

RICHARD LEWIS, *Secretary*,
ROYAL NATIONAL LIFE-BOAT
INSTITUTION,
John Street, Adelphi, London.
December, 1873.

RALPH BARTON, *Vice-Admiral*,
Hon. Sec. of the Southport Branch
of the Institution.

The NATIONAL LIFE-BOAT INSTITUTION has now 242

Life-boats under its management; and it is a remarkable fact that every one of these Boats has been a gift to it. Some 17 years since a lady presented to the Institution the cost of a new Life-boat which was to be stationed at a part of the coast where most needed. Another soon followed from a gentleman; a third was presented by a Yacht Club; and a fourth was given by a lady, as a thank-offering after a providential preservation from drowning. Rapidly the generous spark fanned into a flame, and new boats as fast as they were required on various coasts of the United Kingdom were presented.

Many of these noble gifts assumed the shape of memorials to departed relatives or friends—the first of which was given by two surviving sisters, in memory of a deceased one, and which boat bears the name of the *Sisters' Memorial*. Next came inland towns—Ipswich being the first—some of the inhabitants of which, feeling a desire that their own communities should be represented on the coast as performing their share of the national duty of affording succour to shipwrecked persons, in the only manner in which they could do so, appealed to their fellow-townsmen; and soon many of such inland places were represented by their own boats, Manchester and our chief manufacturing towns and cities being conspicuous in the good work.

Again, various public bodies, such as the great Mutual Benefit Societies, the Civil Service, the Universities, Yacht Clubs, Commercial Travellers, Sunday Schools, and the subscribers to Public Journals, the Society of Friends, the Bristol Histrionic Club, and other Bodies, have come forward at different times, and strengthened the hands of the Institution by providing the funds for the purchase of Life-boats.

In addition to its own Life-boat Work and to the Rewarding of persons who, by Shore-boats or other means, are instrumental in Saving Life from Wrecks on our coasts, the Institution has done good service in numerous other ways.

Thus it has published the well-known Instructions for the Restoration of the Apparently Drowned. They are based on the admirable directions of the late Dr. MARSHALL HALL, combined with those of Dr. H. R. SILVESTER, and are the result of most extensive inquiries instituted by the Society in 1863-4 amongst medical and scientific men both at home and abroad. These directions have been extensively circulated by the Society throughout the United Kingdom and in the Colonies. They are also in use in Her Majesty's Fleet, in the Coastguard Service, and at all the stations of the British Army throughout the world. (Appendix, p. 219.)

About the same period the Institution caused most searching inquiries to be made round our coast on the subject of the Management of Open Boats in Heavy Surfs and Broken Water. The result was embodied in instructions for the guidance of those having charge of such boats, which have been widely circulated, and their use is taught on board the Training Ships both of the Royal Navy and the Merchant Service. (Appendix, p. 199.)

Again, it has introduced an improved Safety Fishing Boat on the coast, by building such boats, provided with safety fittings, and placing them at selected stations with the view of inducing fishermen to construct their boats after that model. Thus it has helped to diminish the loss of life which so frequently occurred when fishermen were overtaken by gales of wind at long distances from the land; and it is manifest that the

experiment has been successful. The Inspecting Officers of the Institution, on recent tours of inspection to its Life-boat Stations on the north and east coasts of Scotland, observed that a large number of the fishing-boats on that part of the coast, both new and old, were now decked and fitted like the Safety Fishing Boats introduced by the Institution. (Appendix, p. 206.)

It has also supplied to nearly all its Life-boat Stations an efficient and trustworthy barometer, verified by Mr. GLAISHER at the Greenwich Royal Observatory. Attached to each barometer is a chart, on which the daily indications of the instrument are registered. By means of this diagram the boatmen and fishermen are enabled readily to observe the progressive rise and fall of the mercury. Thus a more prudent spirit has been fostered amongst those men, and it is gratifying to know that the instruments are highly appreciated on the coast. In several cases they have been the means of warning seafaring men of the coming storm, which would otherwise probably have overtaken them in mid-ocean, and proved their destruction. (Appendix, p. 209.)

The Institution has also never ceased to advocate the desirability of providing a better class of Life-boat for use on board ships—and has introduced a cheap and efficient Life-belt for the use of seamen. (Appendix, p. 197.)

Life-boat Societies have been organised, on the principles of the NATIONAL LIFE-BOAT INSTITUTION of England, in France, Germany, Russia, Austria, Italy, Turkey, and other foreign countries. The Institution has also rendered every possible assistance to these Foreign Life-boat Societies, which in some instances have had their Life-boats built by its own builders under the superintendence of its Officers. Great success has happily attended the formation of some of these

Societies, many lives having been saved through the instrumentality of their Life-boats.

It may here be interesting to trace the gradual progress of the NATIONAL LIFE-BOAT INSTITUTION since its re-construction in 1850, which can easily be done on reference to the following tabular statement :—

Year.	Receipts.	No. of Life- boats.	No. of Lives Saved.
	£ s. d.		
1849-50	354 17 6	19	209
1850-1	758 1 3	19	470
1851-2	2,468 19 2	30	230
1852-3	703 3 11	34	773
1853-4	1,885 0 2	36	678
1854-5	1,744 19 4	50	355
1855	2,034 14 1	50	406
1856	4,983 14 8	58	473
1857	5,327 8 2	70	374
1858	7,802 13 0	81	427
1859	11,652 11 6	101	499
1860	14,027 11 2	110	455
1861	15,092 10 10	121	424
1862	14,825 5 5	124	574
1863	21,101 6 3	132	714
1864	31,917 9 8	144	698
1865	28,932 3 3	162	714
1866	41,718 1 4	173	921
1867	39,305 10 5	186	1086
1868	31,668 9 8	200	862
1869	40,409 15 3	220	1231
1870	25,711 16 4	228	784
1871	28,140 4 3	233	882
1872	27,331 14 4	233	739
1873	31,740 0 3	240	668

It has thus come to pass that, with the blessing of God and through the liberality of the British public, the Institution has contributed altogether, up to the close of 1873, to the saving of 22,153 lives from Wrecks on our Coasts, either by its Life-boats or by other means, for which services it has granted 940 Gold and Silver

Medals, besides pecuniary rewards to the amount of over £42,000. One of the most important functions of the Institution has always been to encourage persons to put off, in the absence of Life-boats, in shore-boats, to save life from shipwreck. Some noble deeds have been performed on such occasions, and have evoked from the Society its highest class of rewards. But the object of this work would be somewhat defeated by embodying in it the details of those services, although often of a thrilling character.

Through the splendid support, and generous appreciation of the nation, the Institution has now achieved a position which enables the members of its managing body to look with satisfaction on the retrospect of their labours, and entitles them to the gratification of feeling that the work which they had set their hand to do twenty-five years ago has been performed. That is to say, they have placed on every point on the coasts of the United Kingdom, where its services are likely to be needed, and where it is possible to obtain a crew and local co-operation or supervision, the best Life-boat which man has been able as yet to invent.

It simply remains to keep this system in good working order, and to provide funds for maintaining the existing Life-boat Establishments in a state of completeness and efficiency. To do this, however—considering that the NATIONAL LIFE-BOAT INSTITUTION is solely dependent on voluntary support—the encouraging sympathy and interest, and the liberal pecuniary aid of their fellow-countrymen will still be required.

At the same time it is desirable to point out that the Institution is ever ready to consider proposals to establish new Life-boat Stations which new developments

of trade or other cause may render desirable. There are still, however, extensive lines of coast where, owing to the absence of trade, wrecks very rarely take place, and where, therefore, it would only be diverting money from more useful objects to establish Life-boats; whilst there are other localities at which, from the rocky or precipitous character of the shore, they could not be launched or hauled up in gales and heavy seas without certain destruction, or where there are no competent boatmen to work them.

Still we must not lose sight of the melancholy fact that hundreds of lives are lost annually on and around our own shores alone, proclaiming solemnly though silently, that for humanity's sake and for the national credit, no exertions should be spared in providing every possible means for the conveyance of succour to the shipwrecked.

Perhaps no human Institution of modern times can show such a rapid development or more splendid results. At its resuscitation, in 1850, it had only a few comparatively inferior and ill-found Life-boats nominally in connection with it; its Jubilee found it with *two hundred and forty-two* valuable and splendid boats, perfectly equipped, for the most part mounted on well-designed and admirably-built Carriages for land transport, kept in solidly constructed and durable Boat-houses, and manned by brave and practised crews.

In future the resources and energies of the Institution will no doubt have to be chiefly, if not solely, devoted to maintaining in a state of complete efficiency and constant readiness for service the magnificent Fleet which it now has under its management. But we repeat that Life-boats, and the various articles of their equipment, decay, and are constantly liable to injury, and that there-

fore a large annual income is absolutely needed to meet these contingencies, to reward the crews for their noble services, and to pay the salaries of the coxswains of the boats and the permanent expense of the quarterly exercise of their crews.

Another serious source of expense likewise arises from encroachment of the sea, which in some localities washes away or injures slipways, roads cut through cliffs, and other approaches to the shore, thus cutting off the communication between the Life-boats and the sea, and which therefore require from time to time to be renewed or repaired, and occasionally even necessitate the removal of the boat-houses to safer or more favourable situations.

Accordingly the Life-boat Institution needs a large permanent income ; and its Committee feel assured it will never lack support so long as it maintains its Fleet in the state of thorough efficiency attained at the present time, manned as the boats of the Institution are on every emergency by as fearless and noble a class of men as ever our NELSONS and COLLINGWOODS led to battle to uphold our country's honour and glory.





APPENDIX.

APPENDIX.



APPENDIX.

ROYAL NATIONAL LIFE-BOAT INSTITUTION.

THE MEDAL OF THE INSTITUTION.



Obverse.—Bust of Her Majesty Queen Victoria ; beneath, in minute letters, "L. C. Wyon."
Double legend, "Royal National Life-boat Institution. Founded in 1824.
Incorporated 1860. Victoria, Patroness."

Reverse.—Three sailors in a Life-boat,—one of whom is in the act of rescuing an exhausted mariner from the waves on a fragment of the wreck. "W. Wyon, Mint." Inscription, "Let not the deep swallow me up."

THE beautiful obverse of this medal, executed by L. C. WYON, Esq., represents the bust of QUEEN VICTORIA, Her Majesty's locks gracefully waving and gathered in a knot behind, from which issues a wreath of oak clustering over the forehead. This life-like portrait of the QUEEN, in high relief, conveys a truly pleasing and faithful likeness of Her Majesty, combining dignity of aspect and benevolence of nature ; and represented by Mr. WYON with the most exquisite finish, delicacy, and beauty of workmanship.

The reverse, representing the Life-boat, in which there are three sailors, rescuing a fourth from the sea, is a work of superlative merit. Two of the sailors are steadying the boat, while the other, stooping, draws in the shipwrecked sailor, whose figure is given so as to show the form in the most natural and beautiful manner ; and the expression thrown into his countenance looking up to his preserver is unrivalled by anything that

we have ever seen, while the easy flowing lines of this sailor are finely contrasted by those of his companions; the whole displaying the most perfect knowledge of the human frame, the finest taste to arrange it, and a command of the graver to embody to us what the artist's bright genius had shadowed out to himself.

But there is another pleasing motive for our admiration of this beautiful medal, as the figure who is so humanely extending his relief to the drowning mariner is a portrait of the artist (the late WILLIAM WYON, Esq., R.A.) himself.

The following is a LIST of the GOLD and SILVER MEDALS that have been voted by the Committee of the Institution, since its establishment in 1824, to persons whose humane and intrepid exertions in saving Life from Shipwreck on our Coasts have been deemed sufficiently conspicuous to merit that honourable distinction. The cases will be found recorded in detail in the several Annual Reports of the Institution.

The number of Medals granted by the Institution up to the present time is as follows :—

Gold Medals	...	...	...	...	91
Silver Medals	...	...	...	...	855
Total	...	...	...	...	946

Note.—The asterisk (*) after the name denotes the reception of a Gold Medal.

The figure after the name signifies the number of honorary distinctions received from the Institution.

Abbreviations.—Ct. G^d.—Coast Guard.

R. C.—Revenue Cruiser.

M. M.—Master Mariner.

Acraman, Mr. John, Fish-guard.	Annis, Mr. M., Ct. G ^d . (2)	Baker, Lt. G. S., R.N.
Adair, Mr. W., Ct. G ^d .	Anthony, Mr. Owen, M.M., Holyhead.	Ct. G ^d .
Dundrum.	Armstrong, R., Newbiggin.	Baker, Lt. W. H., R.N., Ct. G ^d .
Adam, Mr. J., Ct. G ^d , Newcastle. (2)	Armstrong, Mr. W., Pilot, Blyth.	Baker, Mr. T., Ct. G ^d , Brooke.
Adams, Mr. Thomas, M. M.	Armstrong, W., Newbiggin.	Banyard, Mr. John, Ct. G ^d , Hornsea.
Agar, J., Ct. G ^d , Morris Castle.	Askin, J., Ct. G ^d , Boatman.	Barlach, Mr. Henry, M. M.
Agnes, Samuel, Seaman, Wivenhoe.	Atkins, T., Ct. G ^d , Wainfleet.	Barnard, A., Ct. G ^d . (2)
Ahern, John, Kilmore.	Autridge, Lieut., R.N., Doonbeg.	Barnes, George, Christchurch.
Aikin, J., Ct. G ^d , Cushendall.	Avis, Mr. J. N., M. M., Boulogne.	Barrett, Mr. J., Ct. G ^d , Carnsore. (2)
Alexander, W., Coxswain of the Thorpeness Life-boat.	Bacon, Henry, Harwich.	Barrett, W., Ct. G ^d , Balbriggan.
Allan, Jas., Pilot at Holy Island.	Bacon, Mr. James, M. M.	Barrett, W., jun., ditto.
Allen, Mr. Luke Jas., M.M., Wivenhoe.	Bailey, Jas., Boatman, Deal.	Barron, R. N., Esq., Dun- garvan.
Amis, Edward, late Coxswain of the Palling Life-boat.	Baillie, Lieut. Henry, R.N.	Barry, Lt. G. R.N., Kin- sale.
Anderson, Mr. John G., R.N.	Baillie, Lieut. H., R.N., Caister.	Bate, Samuel, Second Coxswain of Padstow Life-boat.
	Bain, Alex., Seaman, Skerries.	Bates, Mr. Thos., Ct. G ^d .
	Bake, Lieut., R.N., Ct. G ^d .	

- Batist, J., Ct. G^d. Boatman.
 Beaton, G. B. M., Esq.,
 Ct. G^d. (2)
 Beauclerk, The late Lord
 Charles.
 Beck, Robert, Point of Ayr.
 Beddoe, D., Fishguard.
 Bedwell, Mr. W., M. M.,
 Freswick, N.B.
 Begg, Mr., M. M.
 Bennett, Capt. C. C., R.N.*
 Berriman, Mr. James, M.M.
 Bevan, Mr. John, M. M.,
 Aberavon.
 Bingham, Mr. Wm., Bell-
 mullett.
 Black, A., Ct. G^d, Strang-
 ford.
 Blackmore, Mr. Wm., Chief
 Officer of Ct. G^d, Pen-
 zance. (2)
 Blair, Lt. Horatio, R.N.,
 Ct. G^d.
 Blampied, Mr. C., Jersey.
 Blance, John, Shetland.
 Blissendon, William M.
 Blois, Capt. J. R., R.N.*
 Bolitho, Simon, Ct. G^d,
 Bude.
 Bongourd, H., Pilot, Guern-
 sey.
 Bonner, G., Ct. G^d, Col-
 lieston.
 Bouchard, John, St. Mar-
 tin's, Jersey.
 Bowen, Lieut. C. H., R.N.*
 Boyd, Henry, Ct. G^d.
 Boyd, Captain, R.N.
 Boyle, Lieut. Hon. R. F.,
 R.N.
 Brice, W., Ct. G^d, Green-
 castle.
 Bridle, Mr. W., M. M.,
 Lyme.
 Brine, Thos., Esq., Douglas.
 Brinksmead, Mr. W.,
 M. M., Bideford.
 Brittain, Lieut. G. S., R.N.,
 Ct. G^d. (2)*
 Britton, Mr. J., Master of
 the American ship *Ros-
 chester*.*
 Broad, W., Esq., Fal-
 mouth.*
 Brooks, A., Ct. G^d, Dunge-
 nesses.
 Brown, Henry, Newbiggin.
 Brown, James, Dunbar.
 Brown, Thos. Cresswell.
 Browne, Mr. P. R. M. (2)*
 Brunton, Lt. J., R.N.,
 Ct. G^d. (2)*
 Buck, W. C., Esq., R.N.,
 Ct. G^d.
 Buckett, James, Coxswain
 of Brightstone Grange
 Life-boat.
 Budd, James, Esq., Tra-
 more.
 Bulkeley, J. B., Coxswain
 of Teignmouth Life-boat.
 Bulley, Lieut. J., R.N.
 (4)**
 Bumby, Mr. J., Ct. G^d,
 Clovelly.
 Bunt, Mr. John, Ct. G^d.
 Burnard, Mr. T., Bideford.
 (2)
 Burne, J., Ct. G^d, Pen-
 zance.
 Burne, John, sen., Shields.
 Burney, Mr. R., Ct. G^d,
 Banff.
 Bury, Ld. Viscount, P.C.,
 M.P.
 Butcher, James, Lowestoft.
 Butcher, Rich., Lowestoft.
 Byrne, Mr. Lawrence,
 Ct. G^d.
 Cahill, D. F. S., Esq., M.D.,
 Berwick.
 Cain, Wm., Isle of Man.
 Callaway, W., Seaman,
 Lyme.
 Campbell, James, Leestone.
 Campbell, Miss J., Drog-
 heda.
 Campbell, Mr. Angus, cut-
 ter *Princess Royal*.
 Candlish, J., Coxswain of
 the Lytham Life-boat.
 Cannell, T., Isle of Man.
 Carberry, Patrick, Wexford.
 Carbis, Thos., Coxswain of
 the Penzance Life-boat. (2)
 Carey, H., Esq., Shrove
 Head.
 Carr, C. S., Gunner R.C.
Sylvia.
 Carr, John, Ct. G^d, Dun-
 manus.
 Carrington, Lieut., R.N.
 Carrington, W. H., Esq.,
 Douglas.
 Carter, Mr. J., Ct. G^d, Bal-
 briggan.
 Casey, M., Newcastle, Ire-
 land.
 Castel, G., Boatman, Broad-
 stairs.
 Cay, Capt. R. B., R.N.,
 Ct. G^d, Penzance.
 Chaddock, J., Ct. G^d,
 Stonehaven.
 Chaplin, Mr., M. M.
 Chappell, Mr. T., Bideford.
 Chappell, Capt. W., Bide-
 ford.
 Chard, J., Boatman, Thorpe.
 Chittenden, E., Broad-
 stairs.
 Clark, George, Seaman.
 Clark, Lieut. Joseph, R.N.*
 Clayburn, T., Scarborough. (2)
 Clayton, Lt., R.N., Ct. G^d.
 Cleave, Mr. R., M. M.,
 Wivenhoe.
 Cloke, W., Pilot, Meva-
 gissey.
 Cobb, Rev. C., M.A., Dym-
 church.*
 Cockrom, W., Steward,
 H.M.S. *Eagle*.
 Coffey, P., Tramore, Water-
 ford.
 Colby, Nathaniel, Coxswain
 of the Pakefield Life-boat.
 Cole, J., Seaman, Wiven-
 hoe.
 Collard, Mr. S., Pilot.
 Collins, Mr. J., Master of
 the American ship
Roscius.*
 Collison, Mr. R., M. M.,
 Stonehaven.
 Collopy, J., Ct. G^d, Porth-
 cawl.
 Combe, Lt. M., R.N.,
 Dungeness.
 Coneys, Mr. Anthony, Clif-
 den.
 Connick, Mr. J., Dundalk.
 Cooper, Mr. Hugh, Ct. G^d,
 Cromaine Point.
 Coppin, Lt. F., R.N., Ct. G^d.
 Corbert, W., Coxswain of
 the Ardmore Life-boat.
 Corbet, P., Pilot, Guernsey.
 Corbett, W., Esq., Isle of
 Man.
 Cork, W., Ct. G^d, Fort
 George.
 Corkhill, W., Coxswain of
 the Padstow Life-boat.
 Cornish, Lt. J., R.N.,
 Bovis.
 Costello, M., Esq., Ross-
 lare.
 Coul, Alexander, Montrose.
 Coul, Charles, Montrose.
 Cowin, J., Isle of Man.
 Cox, Lt. H., R.N., Ct. G^d.
 (2)*
 Cox, Joseph, Coxswain of
 the Appledore Life-boat.
 (3)
 Cox, J., jun., Second Cox-
 swain of the Appledore
 Life-boat.
 Cox, W., Kilmore.
 Craggs, J., Ct. G^d, Devon-
 port.
 Cragie, J., Coxswain of the
 Southwold Life-boat.
 Cronne, Dennis, Ballycot-
 ton.
 Cropper, Peter, Liverpool.
 Crosby, Nicholas, Dundalk.
 Crosswell, Mr. T., Fowey.
 Crouch, J., Boatman, Broad-
 stairs.
 Crouch, R., Boatman,
 Broadstairs.
 Crowden, Mr. J., Chief
 Officer of Ct. G^d. at
 Muchals, N.B.

- Cubitt, Mr. W., Bacton. (2)
Culmer, Mr., Ct. G^d, Leigh.
Cummins, Mr. J., Coxswain of the Arklow Life-boat.
Cunningham, Mr. J., Newcastle.
Curnow, Mr. Paul, Coxswain of the St. Ives Life-boat.
Curteis, Mr. W., Ct. G^d.
Curtis, Steph., Christchurch.
- Dabine, Lieut., R.N., Ct. G^d.
Dand, M. H., Esq., Hauxley. (2)
Dark, Mr. William, M. M., Padstow.
Darling, Wm., Light-house keeper, Fern Islands, Durham.
Darling, Grace, his daughter.
Darragh, H., Ct. G^d, Innis Bofin.
Davies, Capt. Geo., R.N. (4)*
Davies, Capt. Thos., R.N.
Davies, George, Hoylake.
Davison, W., Sunderland.
Dawson, Mr. T., Hartlepool.
Day, Chr., Seaman, Middleborough.
Day, Mr. Thomas, Bideford.
Deane, Mr. Henry, Ct. G^d.
Delpierre, Jean A., Boulogne.
Dent, J., Fisherman, Newbiggin.
Desmond, John, Limerick.
De St. Croix, Mr. F., Jersey.*
De St. Croix, Mr. J., Jersey.*
De St. Croix, Mr. P., Jersey.*
Devereux, M., Master Pilot, Rosslare. (3)
Dillon, Jas., Ct. G^d, Arklow.
Dobson, T., Coxswain of the Donna Nook Life-boat.
Donkin, A., Cullercoats. (2)
Donovan, Dennis, Ct. G^d. (2)
Donovan, J., Ct. G^d, Boatman.
Dooley, Lt. D., R.N., Ct. G^d.
Douglas, Alexander, Ct. G^d.
Dower, Capt. A., Dungarvan.
Downing, Nicholas B., Esq., Penzance.
Drayson, D., Ct. G^d, Atherfield.
Duffy, M., Mullaghmore.
- Dunn, Mr. William, M. M.
Durban, John, Walmer.
Dyer, B., Seaman, Wivenhoe.
Dyer, B., Seaman, Wivenhoe.
Dyer, Lt. H. McNeill, R.N.
Dyer, Mr. John, Stratton.
- Earle, Lt. E. C., R.N., Rye.*
Eastaway, R., Boatman, Ct. G^d.
Eddy, R., Pilot at Plymouth. (3)
Edington, Mr. Chas., Ct. G^d.
Edwards, Mr. D., Montrose.
Ellis, Henry, Ct. G^d, Bude.
Elphinstone, Geo., Dundalk.
Else, Lieut., R.N., Fowey.*
Elton, Lt. W. H., R.N., Ct. G^d.
Elwin, Lt., R.N., Lymington.
Elyard, Major, J., Broadstairs, 2nd Surrey Militia.
Erridge, E., Boatman, Deal.
Essell, Lieut. Wm. F., R.N.*
Evans, Capt. Thomas.
Evans, Mr. J., M. M., Fishguard.
Evans, Lieut. Thomas, R.N.
Evans, T., sen., New Brighton. (2)
Evans, T., jun., New Brighton.
Evans, Wm., New Brighton.
Evans, Wm., Pilot, Neath.
Evison, Lt. J. C., R.N., Ct. G^d.
- Farmer, David, Hayling.
Farrin, Mr. G., H.M.S. Ajax.
Fellows, Capt. T. H. B., R.N.
Festing, Lieut., R.N.
Festing, Colonel Sir F. W., R.M.A.
Field, Lieut. Wm. Geo., R.N.
Field, Mr. W., Milford Haven.
Finlay, G., Ct. G^d, Lambay Island.
Finlay, William, Montrose.
Fish, Chas., Coxswain of the Ramsgate Life-boat.
Fish, John, Southwold.
Fisher, Mr. S., Horseferryroad.
Fisher, Mrs., North Faroe Islands.
Fitzjames, Mr., R.N., Euphrates Expedition.
- Fitzpatrick, J., Ct. G^d, Malin Head.
Flann, Wm., Portland.
Fleming, George, Gorleston.
Fletcher, T., Ct. G^d, Rosslare.
Flynn, P., Ct. G^d, Kilrush.
Foley, Mr., M. M.
Foley, Mr. J., Port Talbot.
Forbes, Mr. A., Peterhead.
Formby, Joseph, Formby.
Forward, Mr. T. R., Commander R. C. *Sylvia*.*
Foster, J., Ct. G^d, Aldboro'.
Found, Mr. W., M. M., Padstow.
Fowell, John, Seaman.
Fowler, Mr. James, M. M., Scarborough.
Fox, Mr. John, Fleetwood.
Foy, Thomas, Rossglass.
Frankish, T. H., Bridlington Quay.
Franklin, Lt. E., R.N., Hove.
Franklyn, Lieut. G., R.N.
Freeman, Henry, Whitby.
Freeman, John, Seaman.
Freeman, James, Helston.
Freemantle, Capt. C. W., R.N.*
Freaney, John, Killiney, Co. Dublin.
French, Mr. Charles, Ct. G^d.
Fulton, Mr. Robert, R.N.
Furlong, A., Fishguard.
Galbraith, Mrs. E., Whiteney.
Gale, Mr. W., M. M., Barking.
Gallagher, P., Co. Down.
Gerrard, Mr. R., Pilot, Fleetwood.
Giles, Mr. W., M. M., Padstow.
Gillespie, Andrew, Gunner.
Gilmer, Mr. W., Dundalk.
Gilson, Lt. T. A., R.N., Ct. G^d.
Gimar, Mr. E., Master of the French brig *Le Norman*.
Gin, N. François, Boulogne.
Gleeson, R. F., Wexford.
Glover, Mr. J., M. M., Gunfleet Sand.
Goldring, Mr. W., M. M., Hayling.
Goss, Capt. T., R.N., Ct. G^d. (2)*
Gough, J., Fisherman, Waterford.
Gould, Lt. Wm., R.N., Ct. G^d.
Graham, G., Lt. R.N., Ct. G^d.
Graham, Capt. Philip, R.N.*
Granby, Mr. Charles, M. M.

- Grandy, Mr., of the R. C. *Harpy*.
 Grandy, Lieut. S., R.N. (2)*
 Grant, Mr. W., Coxswain of the Margate Life-boat.
 Graves, Mr. J., M. M., Carlisle.
 Gray, A., Ct. Gd., Fort George.
 Gray, D., Ct. Gd., Kilmore.
 Gray, Mr. Geo., Bridlington.
 Gray, Mr. J., M. M., Peterhead.
 Gray, E. W. D., Esq., Dublin.
 Gregory, J., Ct. Gd., St. Andrew's.
 Grey, George, Hartlepool.
 Griffith, David, Beaumaris.
 Griffith, Robert, Anglesey.
 Griffiths, Mr. B., M. M., Portmadoc.
 Griffiths, G., Pilot, Anglesey.
 Griffiths, T., Ct. Gd., Mulbay.
 Gruer, Wm., Ct. Gd., Lossiemouth.
 Guy, Mr. Philip, Bideford.
 Halse, Mr. R., Ct. Gd., Ardmore.
 Hamilton, Mr. Geo., Ct. Gd.
 Hamilton, H. A., Esq. (3)*
 Hamon, Mr. A., M. M.
 Hanning, N., Ct. Gd., Dingle.
 Hansell, P. S., Broadstairs.
 Hansford, John, Weymouth.
 Harrington, Mr. Jas., Bridlington Quay.
 Harrington, T., Ct. Gd.
 Harris, F., Esq., Inspecting Officer, Ct. Gd., Seafeld.
 Harrison, Jacob, Shields.
 Hayden, Mr. F., Sandown, Isle of Wight.
 Heal, J., Fisherman, Atherfield.
 Heard, Rich., Esq., Ct. Gd.
 Heath, Mr. Joshua, Coxswain of the Fowey Life-boat.
 Heavy, P., Constable, Knock.
 Hein, Mr. F. J., Russian M. M.
 Henin, P., Boulogne-sur-Mer.
 Hennessy, J., Ct. Gd.
 Henry, Lieut., R.N., Ct. Gd.
 Henslow, Lt., R.N., Ct. Gd.
 Henwood, T., Ct. Gd., Fowey.
 Herbert, The Hon. Auberon.
 Herrington, B., Southwold. (2)
 Hick, Mr. M., Scarborough.
 Hicks, Barnard, Scilly.
 Hicks, George, Ct. Gd., Tyrella.
 Hicky, Samuel, Seaman.
 Higgs, S., jun., Esq., Penzance. (2)
 Higgins, W., Second Coxswain of the Penzance Life-boat.
 Highland, Owen, Anglesey.
 Hildebrand, H., Esq., Clifden. (2)
 Hill, Mr. J., Coxswain of Newcastle (Co. Down) Life-boat.
 Hill, Mr. W., Mate.
 Hillary, Sir A. Wm., Bart.
 Hillary, Sir Wm., Bart. (4)****
 Hills, W., late Coxswain of the Padstow Life-boat. (2)
 Hipplewhite, Mr. T., M. M., Warkworth.
 Hodgson, J., Carver, Sunderland.
 Hoed, Mr. F. P., M. M., of Netherlands ship *Phenomené*.
 Hogben, J., late Coxswain of Ramsgate Life-boat.
 Hogg, Mr. William, Ct. Gd.
 Holborn, S., Broadstairs.
 Holland, Lieut. John, R.N.
 Holman, Lieut. T., R.N.
 Hood, R., Coxswain of the Seaton Carew Life-boat.
 Hood, Mr. W., Seaton Carew.
 Hook, R., Coxswain of Lowestoft Life-boat. (2)
 Houghton, H., Hartlepool.
 Howe, R., Ct. Gd., Ballygerig.
 Howell, Mr. J., Port Talbot.
 Howorth, Capt. Wm., R.N.
 Hughes, E. sen., Cwmeran, Anglesey.
 Hughes, G., Pilot, Guernsey.
 Hughes, Mr. John, Liverpool.
 Hughes, T., Pilot, Holyhead.
 Hughes, Mr. W., Fisherman, Pittenweem, N.B.
 Humphreys, Mr. D., Liverpool.
 Hurry, Mr. Stephen, M.M.
 Huss, Mr. T., H.M.S. *Rover*.
 Hutchinson, Mr. H., Ct. Gd.
 Hutchinson, Lt., Kingstown.
 Hutchison, Lieut. W., R.N.*
 Hyde, James, Scilly.
 Hynds, Mr. John, Dundalk.
 Hynes, B., Ct. Gd., Galway.
 Iles, The late Mr. John, Scarborough.
 Inkster, Mr. Peter, M. M., Shetland.
 James, Lieut. Horatio, R.N.*
 James, Lieut. Wm., R.N.*
 Japp, Robert, Montrose.
 Jarman, Isaac, late Coxswain of Ramsgate Life-boat. (2)
 Jeffers, Rich., Ct. Gd., Dingle.
 Jefferson, P., Newbiggin. (2)
 Jellard, Mr. John, M. M.*
 Jenkins, L., Pilot, Port Talbot.
 Jenkins, Mr. W., Fishguard.
 Jennings, Mr. Wm., M. M., Harwich.
 Jennings, W., Ct. Gd., Looe.
 Jesse, Commander R., R.N.
 Jinks, Mr. R., Chief Officer of Coast Guard, Cardigan.
 Joachim, Captain, R.N. (4)
 Jobson, Lt. C., R.N. (2)***
 John, Mr. W., Breakesea.
 Johns, Mr. Richard, Mevagissey.
 Johns, Rich., Seaman, Fowey.
 Johns, R. O., Coxswain of the Tramore Life-boat. (3)
 Johns, Mr. W., M. M., Padstow.
 Johnson, Lieut. W. W. P., R.N.*
 Johnson, Wm., Yarmouth.
 Johnston, Mr. B., M. M.
 Jones, Capt. C. Gray, R.N.
 Jones, Mr., Ct. Gd., Wicklow.
 Jones, Mr., Ct. Gd., Swords District.
 Jones, Mr. E., M. M., Portmadoc.
 Jones, Henry, Penzance.
 Jones, J., Pilot, Porthcawl.
 Jones, Owen, Anglesey.
 Jones, Lt. R., R.N., Ct. Gd. (3)*
 Jones, Mr. T., M. M., Port Talbot.
 Jones, Mr. T., M. M., Cardiff.
 Jones, Mr. Thomas, Holyhead.
 Joy, Mr. George, M. M.*
 Juniper, Wm., Mundesley.
 Kavanagh, Peter, Coxswain of the Arklow Life-boat.
 Kearon, Captain Edw., Arklow.

- Kelly, Lieut. E., R.N., Mauritius.
 Kelly, J. M., Appledore.
 Kendall, W., Ct. Gd., Atherfield.
 Kennedy, Inspecting - Lt. A., R.N., Ct. Gd., Ballyheige (2).
 Kennedy, E., Ct. Gd., Dunfanaghy.
 Kennedy, Mr. H., Belfast Lough.
 Kennedy, Master J., Belfast.
 Kerley, T., Ct. Gd., Penzance.
 Kerrish, Mr. John, Ct. Gd.
 Kidd, D., Fisherman, Dundee.
 Kinch, H., Newcastle-on-Tyne.
 King, Mr. T., M. M., Harwich.
 King, Lt. S., R.N., Southend.
 Kisbee, Com. Thos., R.N.
 Knight, J. T., Ct. Gd., Sunderland.
 Lake, Mr. A., Chief Officer of Ct. Gd., Wick, N.B.
 Lambert, John, Harwich.
 Lambeth, Benj., Harwich.
 Landells, Mr. Thos., Milford.
 Lane, Lieut., R.N., Dartmouth.
 Langan, Mr. Michael, First Officer of steamer *Princess Alexandra*.
 Langton, Lieut. T. W., R.N., Ct. Gd.
 Large, Mr. J., Master Gunner, R.A.
 Larkin, Thomas, Seaman.
 Lavington, Lt. Thos., R.N.
 Lazois, Lieut., of the French Marine at Dieppe.
 Leask, Mr. Robert, jun., Ireland, near Stromness.
 Leese, Charles, Gunner, R.A.
 Le Geyt, Miss A. B., Bath.
 Leggett, Edw., Gunner.
 Leigh, Lt. T., R.N., Ct. Gd. (3).
 Leslie, Mr. J., M.M., Stonehaven, N.B.
 Lett, Lt. S. J., R.N., Ct. Gd.
 Levett, Mr. N., late Coxswain of the St. Ives Lifeboat.
 Lewis, E., Seaman, Barmouth.
 Lewis, Mr. G., Ct. Gd., Newport, Pembroke.
 Lewis, J., Seaman, Harwich.
 Lewis, Mr. Thos., Dundalk.
 Lewis, W., Seaman, Harwich. (2).
 Lewis, W., Aberystwith.
 Ley, J., Pilot, Mevagissey.
 Liffen, Thomas, Lowestoft.
 Likely, Henry, Limerick.
 Lindsay, Lieut. Jas., R.N.*
 Lingard, Lieut. J., R.N., Whitby.*
 Lithaby, P., Ct. Gd. Boatman.
 Llewellyn, Mr. David, Ct. Gd.
 Llewellyn, M., Fishguard.
 Llewellyn, Martha, ditto.
 Lloyd, O., Ct. Gd., Lulworth Cove.
 Lloyd, Lt. S., R.N., Ct. Gd.*
 Louchet, L. P. A. B., Anthie.
 Loughor, Rees, Monknash.
 Love, Private Robert, 63rd Regiment.
 Lovell, Patrick, Belmullet.
 Ludlow, Mr. I., Master of the American ship *Monmouth*.
 Lusk, Mr. A., Raeberry, N.B.
 Lyons, Lieut. Wm., R.N. (2).
 Macalister, Mr. Robt., Wick.
 Macdonald, George, Ct. Gd.
 Mackell, Mr. Patrick, Ct. Gd.
 Mackintosh, Mr. Alex., M. M.
 MacMahon, Lieut. M. M., East Clare Militia.
 Macnamara, Lt. T., R.N., Ct. Gd.*
 McArdle, Thomas, Dundalk.
 McCarthy, J., Ct. Gd., Dundrum.
 McCarthy, Jas., Ct. Gd., Kilrush.
 McCombie, Mr. Thomas, Second Officer of steamer *Princess Alexandra*.
 McCulloch, K., Ct. Gd., Elie. (2).
 McDonald, Mr. Wm., Irvine.
 McGenis, G., barque *Albany*.
 McGladery, Lt. J., R.N., Ct. Gd.
 McKenzie, J., Ct. Gd., Galway.
 McKinnon, Mr. J., M. M., Greenock.
 McMillan, J., Kantyre.
 McNamee, P., Ct. Gd., Dunmanus.
 McNaughten, Neil, Ct. Gd.
 McQueen, Alex., Seaman.
 Maddick, Mr. H., M. M.
 Manby, Capt. G. W.*
 Mann, Lieut., R.N., Ct. Gd.
 Mariole, J., Baptiste, French Pilot.
 Mark, Wm., Ct. Gd., Dingle.
 Marsh, Capt. D., R.N., Ct. Gd.*
 Marshall, Capt. J., Bideford.
 Martin, Mr. Chas., Ct. Gd., St. Ives, Cornwall.
 Mason, J., Ct. Gd. Boatman, Elie.
 Matthews, Lt. R. B., R.N.*
 May, Mr. A. C., H.M.S. *Rover*.
 May, W. R., Ct. Gd., Boscastle.
 Mearns, Wm., Coxswain of Montrose No. 1 Lifeboat.
 Mearns, Wm., jun., Coxswain of the Montrose No. 2 Lifeboat.
 Mearns, Mr. R., jun., M. M., Montrose.
 Metherell, Lt. R. R., R.N., Ct. Gd.*
 Mewse, A., Boatman, Lowestoft.
 Middleton, John, Boatman, Deal.
 Milburn, John, Shields.
 Milburn, Wm., Isle of Man.
 Miller, J., Ct. Gd., Devonport.
 Miller, W., Boatman, Ramsgate.
 Milligan, Mr. G., Yarmouth.
 Mills, C., Ct. Gd., Clifden.
 Minster, O., Boatman, Deal.
 Mitchell, J., Pilot, Guernsey.
 Mitchell, C., Port Isaac. (2).
 Mittin, Philip, Wexford.
 Moar, May-Stout H., Burra Ness.
 Moody, Samuel, Skegness. (2).
 Moore, Jas., Gunner, Coast Brigade, Royal Artillery.
 Moreno, Mr., Master of the Austrian Barque *Eva*.
 Morgan, John, Thurso, N.B.
 Morgan, Lt. R., R.N., Ct. Gd.
 Morgan, Mr. T., R.C. *Stork*.
 Morris, Capt. J. Row, R.N.*
 Morris, R., Seaman, Holyhead.
 Morris, Mr. W. E., Port Madoc.
 Morrison, Lt., R.N., Ct. Gd.
 Morrison, W., Pilot, Ballywalter.

- Morrison, Mr. Silvester, C^t.
 G^d, Sennen Cove, Lands-
 End.
 Mortley, Mr., C^t. G^d, Pad-
 stow.
 Moss, J., Boatman, Wal-
 mer.
 Mudd, Wm., Harwich.
 Mulligan, James, Sligo.
 Murphy, James, C^t. G^d,
 St. Ives, Cornwall.
 Murray, A., C^t. G^d. Boat-
 man, Elie.
 Nelson, Mr. W., R.N., C^t.
 G^d.
 Newnham, Lt. N., R.N.,
 C^t. G^d.
 Newsom, Mr. W., M. M.,
 Harwich.
 Nichol, Mr. J., M. M.,
 Montrose.
 Nicholas, Matt., Coxswain
 of the Sennen Cove Life-
 boat.
 Nicholson, M., Constable,
 Knock.
 Nicolle, Mr. Philip, Jersey.
 Norcock, Capt. G. L., R.N.
 Norris, Benj., Boatman,
 Deal.
 Norris, Mr. James, M. M.
 Norris, Martin, R.N.R.
 Nott, Capt. E. B., R.N. (2)
 O'Neil, Patrick, Scilly.
 Orr, Mr. Robt., Irvine, N.B.
 O'Sullivan, Mr. M., Bere
 Haven.
 O'Sullivan, D., C^t. G^d,
 Ballycastle.
 Owen, Capt. Wm., Holy-
 head.
 Owen, Mr. William, M. M.*
 Owen, Richard, Anglesey.
 Palmer, G., Esq., M.P.
 (2)**
 Parker, Mr. Edwin, C^t. G^d,
 Mothecombe.
 Parker, Mr. Wm., M. M.
 Parker, Mr. J., Mate, Flam-
 borough Head.
 Parrott, Mr. R., C^t. G^d,
 Tenby. (2)
 Parry, Lieut., R.N.*
 Parry, Mr. Henry, Angle-
 sey.
 Parry, Mr. R., M. M., Port-
 madoc.
 Parsons, Lieut. Thos., R.N.
 Parsons, Lieut. Rich., H.M.
 35th Regiment.
 Parsons, Lt. W., R.N., C^t.
 G^d.
 Partridge, Capt. W. L.,
 R.N., C^t. G^d.
 Pascoc, Peter, Portleven.
 Paul, Thos., C^t. G^d, Bude.
 Paynter, Capt. Richard.
 Peake, Admiral T. L.*
 Peake, James, Esq., H.M.
 Dockyard, Devonport.*
 Pearce, Rich., Esq., Pen-
 zance.
 Pearce, Jas., Pilot, Porth-
 cawl.
 Pearce, T., Pilot, Porthcawl.
 Peart, John, Montrose.
 Pedder, Lt. W., R.N., C^t.
 G^d.
 Peebles, Mr. John, Irvine.
 Peebles, Mr. T., M. M.,
 Irvine.
 Peirson, S. H., C^t. G^d,
 Ballygerig.
 Pepper, J., C^t. G^d, Lyming-
 ton.
 Perkins, Jas., C^t. G^d, Bude.
 Percutt, Sir Edward G. L.,
 Bart., V.P.*
 Petric, Ellen, Shetland.
 Phillips, J., Newcastle, Ire-
 land.
 Picard, Mr. P., French
 M. M.
 Pillar, W., Gunner, H.M.S.
 Eagle.
 Pincomb, T., Pilot, Ex-
 mouth.
 Pitt, E., C^t. G^d, Atherfield.
 Pomeroy, H., C^t. G^d, Mc-
 vagsissey.
 Porter, William, Seaman.
 Powell, Mr. John, M. M.,
 Gunfleet Sand.
 Pratt, Lt. Jas., R.N., C^t.
 G^d.
 Prattent, Lieut. John, R.N.*
 Preston, Mr., C^t. G^d, New-
 ton.
 Prewel, R., C^t. G^d, Kil-
 rush.
 Price, Thos., Beaumaris.
 Pride, C., C^t. G^d, Christ-
 church.
 Prior, Lt. T. H., R.N., C^t.
 G^d.
 Prosser, Mr. H., C^t. G^d.
 Purdy, H., C^t. G^d, Ty-
 rella.
 Puxley, H., Esq., Dunboy
 Castle.
 Pym, Lt. R. E., R.N.,
 Whitby.*
 Quadling, Mr. B. E., C^t.
 G^d. (2)*
 Quayle, Capt. E., Isle of
 Man. (2)
 Quigley, Mr. W. T., C^t. G^d,
 Whitby.
 Quirke, G., Esq., Douglas.
 Rac, Wm., Whitburn.
 Randall, Lt. H., R.N., C^t.
 G^d. (2)**
 Randle, Mr. J., Bristol
 Rawstone, Lt., R.N., C^t.
 G^d.
 Ray, J., Boatman, Tenby.
 Raye, Lieut. H. R., R.M.
 Read, Lieut. J., R.N., C^t.
 G^d.
 Reade, W. M., Esq., Tra-
 more.
 Reading, Mr. Daniel, Mas-
 ter of Ramsgate Harbour
 steam tugs.
 Redford, J., Cullercoats.
 Rees, Mr. A., Port Talbot.
 Rees, Mr. T. M., St. Davids.
 Rees, Mr. W., Fishguard.
 Reeve, Mr. J., Swansea.
 Regan, D., C^t. G^d, Kil-
 more.
 Renowden, J., C^t. G^d,
 Dingle.
 Richards, Mr. E., M. M.
 Richards, Mr. T., M. M.
 Richards, James, Penzance.
 Richards, Henry, Penzance.
 Richardson, Mr. A., M. M.
 Richardson, W., Esq., Cole-
 rairie.
 Ridge, Capt. G. A. E., R.N.
 Ridge, Mr. J., Mate of R.C.
 Kite.
 Ridge, Mr. J., C^t. G^d,
 Cadgwith.
 Rioch, R., C^t. G^d, Collie-
 ston.
 Rivers, T., C^t. G^d, Lydd.
 Roberts, Mr. John, Clog-
 wyn.
 Roberts, Mr. R., Carnarvon.
 Roberts, O., Pilot, Angle-
 sey.
 Robertson, Capt. D., R.N.
 Robertson, Lieut. R., R.N.*
 Robertson, Lieut. J. H. M.,
 R.N.
 Robins, Mr. J. Gunn, C^t.
 G^d.
 Robinson, Mr. J., Aber-
 deen.
 Robinson, Lieut., R.N.
 Robinson, T., Whitby.
 Rockcliffe, W., Southport.
 Roderick, E., C^t. G^d, Dun-
 manus.
 Roderick, J. S., Esq., Ard-
 more.
 Rogers, J., *Royal Charter*.
 Roe, R., Esq., J.P., Lyn-
 mouth.
 Rose, W., Boatman, Lowes-
 toft.
 Ross, Capt. Sir Thos.,
 R.N.*
 Ross, R., C^t. G^d, Curra-
 cloe.
 Ross, R., C^t. G^d, Dunmore.
 Rossiter, T., Wexford.
 Rothery, Lieut. J., R.N.
 Rowe, W., C^t. G^d, Dingle.
 Rowe, W., Scilly.

- Rowe, W., Seaman, Helston.
 Rowlands, Mr. T., M. M., Newport, Pembroke.
 Rowlands, Mr. W., Coxswain of the Holyhead Lifeboat. (2)
 Ruddock, J., Boatman, Filey.
 Russell, R., Esq., J. P., Limerick.
 Rutter, Mr. J., Scarborough.
 Rymer, Lt. D., R.N., Ct. G^d.
 Salmon, C., Fisherman, Gorleston.
 Sanderson, Lieut. J. P., R.N., Ct. G^d, Bridge of Don.
 Sands, Mr. R., M. M., Bahamas.
 Sarony, Mr. O., Scarborough.
 Sauvage, Mr., Master of French fishing-boat *Isabelle*.
 Sawtell, Mr. Edwin, Ct. G^d.
 Scarlett, R., Harwich.
 Scott, Mr. G. R., *Beethoven*.
 Scott, Mr. J., M. M.
 Selly, W. H., Ct. G^d, Penzance. (2)
 Sergeant, Lt. J., R.N., Ct. G^d.
 Sewell, Lt. H. F., R.N., Ct. G^d.
 Sewell, Master John, Belfast.
 Shankey, R., Ct. G^d, Dundalk. (2)
 Shannon, P., Ct. G^d, Kilrush.
 Sharrock, J. P., Ct. G^d, Boscawen.
 Shaw, Lieut. C., R.N., Ct. G^d.
 Shea, D., Coxswain of the Padstow Life-boat. (3)
 Shea, D., Ct. G^d, Porthcawl.
 Sheldon, Robt., Redcar.
 Simpson, Mr. Jas., Ramsgate.
 Sims, J., Ct. G^d, Dungeness.
 Sims, Lt. And., R.N. (2)
 Sinclair, Mr. B., Thurso, N.B.
 Sinnott, R., Ct. G^d, Mullaghmore.
 Smallridge, Mr. J. H., Coxswain of the Brautoun Life-boat.
 Smith, F., Boatman, Lowestoft.
 Smith, J., Shields.
 Smith, Mr. J., Thurso.
 Smith, Mr. Owen, Bideford.
 Smith, Peter, Ct. G^d, Lydd.
 Smith, T., Ct. G^d, Ballina.
 Smith, Mr. W., Aldborough.
 Smyth, H., Ct. G^d, Kilmore.
 Snell, Lt. G., R.N., Ct. G^d.
 Somerville, Lt. J., R.N., Ct. G^d. (2)*
 Southey, Lt., R.N., Ct. G^d.
 Spark, Mr. A., M. M.
 Spraggs, J., Seaman, Hayling.
 Stables, R., Holyhead.
 Stannard, Mr. F., M. M., Southwold.
 Stap, Mr. R., Ct. G^d, Dunbar.
 Stark, Lt. P., R.N., Ct. G^d. (2)*
 Starke, Mr. J., Ct. G^d, Queenstown.
 Steane, Lt. J., R.N., Rye.*
 Stephens, A., Tramore.
 Stephenson, Mr. B., Coxswain of Boulmer Life-boat.
 Steel, Mr. C., Ct. G^d.
 Stewart, W., Ct. G^d, Ardmore.
 Storr, J., Whitby.
 Stone, J., Ct. G^d, Boscawen.
 Stragnell, Lt., R.N.
 Strahan, Mr. H., Pilot.
 Strains, Mr. J., Ct. G^d.
 Strong, Mr. Fran. F. M.
 Stuart, Lt. J., R.N., Ct. G^d.
 Stuart, Lt. T., R.N., Ct. G^d. (2)
 Stubbs, C., Seaman.
 Stubbs, H., Atherfield.
 Stuggins, Mr. W., Second Coxswain of Teignmouth Life-boat.
 Sullivan, J., Seaman, Newhaven.
 Sumner, Mr. R., Formby.*
 Superville, Mr., M. M., Bordeaux.
 Surrey, W., Penzance.
 Sutherland, D., Ct. G^d, Katerline.
 Sutter, Mr. J., M. M.
 Sutton, Mr. C., Port Talbot, M. M.
 Swarbrick, Mr. W., M. M.
 Symes, Lt. H. A. S., R.N., Ct. G^d.
 Syngé, The Rev. A., Balbriggan.
 Tait, Grace, Shetland.
 Talbot, C. R. M., Esq., M.P.
 Taylor, J., Ct. G^d, Dundrum Bay.
 Taylor, Mr. W., C. O., Ct. G^d, Robert's Cove.
 Taylor, Mr. W., C. O., Ct. G^d, Dunny Cove. (2)
 Tegg, Mr. T., M. M., Cornwall.
 Terrett, T., Constable, Knock.
 Thomas, J., Ct. G^d, Atherfield.
 Thomas, J., Ct. G^d, Rocken, Isle of Wight.
 Thomas, R. J., Coxswain of New Brighton Life-boat.
 Thomson, D., Thurso, N.B.
 Thompson, Mr. G., Annalong.
 Thompson, Mr. R., Kirkpatrick, Chief Officer of Ct. G^d. (3)*
 Thomson, W., Apprentice, smack *Ruby* of Hull.
 Thorpe, Mr. T., Newcastle.
 Tindall, Mr. Smith, M. M., Scarborough.
 Tindall, The late W., Esq., Scarborough.
 Toole, Capt. W., Curracloe.
 Toomey, J., Kingstown.
 Town, J., Ct. G^d, Folkestone. (2)
 Town, J., Ct. G^d, Castle Gregory.
 Tredwen, Mr. R., Padstow.
 Tregidgo, Mr. W. H., Ct. G^d, Newquay. (3)
 Trent, J., Fisherman, Atherfield.
 Tresilian, Mr. R.
 Triphook, Mr. R., R. C. *Hamilton*, Dumworldly.
 Trott, T., Boatman, Deal.
 Tuckfield, Mr. T., Bideford.
 Tudon, Capt. J., R.N., Wick. (2)
 Tully, W., Newcastle.
 Turnbull, R., Fisherman, Dunbar.
 Turner, Lt. C., R.N.
 Turpin, Mr. J., Ct. G^d, Salcombe.
 Tutt, E., Ct. G^d, Dunmanus.
 Tuvache, Mr., M. M., French.
 Urell, Mr. Joseph, Ct. G^d, Hope Cove.
 Usher, Mr. J., Bridlington.
 Van Houten, Mr. W., Rotterdam. (2)
 Vicary, Lt. W., R.N., Atherfield.*
 Vondy, I., Isle of Man. (3)
 Waddy, Dr., Churchtown.
 Wade, Mr., M. M., Padstow.

- Wake, Mr. Baldwin Arden,
Mid. H.M.S. *Forester*.
Wales, G., Boatman, Broad-
stairs.
Wales, J., ditto, ditto.
Walker, Lieut., R.N.
Walker, Mr. J., Brigg.
Walker, Mr. W. Lewis,
Beaumaris. (2)
Wallace, Mr. J., M. M.
Walsh, J., Esq., Lloyd's
Agent, Dublin.
Walsh, Mr. Martin, M. M.*
Ward, J., R. C. *Sylvia*,
Penzance.
Ward, Capt. J. R., R.N.
Warder, D. T., Ct. G^d,
Salcombe.
Warn, W., sen., Ather-
field.
Warn, W., jun., ditto.
Warren, Lt. C. D., R.N.
Wassey, Capt. E. F. N. K.,
R.N. (3)
Waters, Wm., Southwold.
Watt, A., Montrose.
Watts, Lieut. W. S., R.N.*
Watts, Mr. Charles, M. M.
Watts, Mr. William, M. M.
Waugh, E., Ct. G^d, Wex-
ford.
Weblin, J., Ct. G^d, Tra-
more Bay.
Wedge, W., Ct. G^d, Sal-
combe.
- Weekes, Wm. Wall, Sea-
man.
Welsh, Mr. M., M. M.
Westbrook, Lieut., R.N.
Wharrier, Mr. William,
Ramsgate.
Wheeler, C., Atherfield.
Wheeler, J., ditto. (2)
Wheeler, R., ditto.
Wheeler, W., Pilot, Graves-
end.
White, James, Coxswain of
the Fishguard Life-boat.
White, Joseph, Portland.
White, J. Kearney, Esq.,
Ct. G^d. (2)
Whitley, Mr. Elias, St. Mar-
tin's, Jersey.
Wilkie, Mr. C., M. M.,
Hermitage Street.
Willcox, J., Ct. G^d, Lydd.
Williams, Mr. D., Aber-
dovey.
Williams, Mr. J., Swansea.
Williams, Owen, Cemlyn.
Williams, Rev. Owen
Lloyd, Bodfean.
Williams, Rev. J., Angle-
sey.*
Williams, Mr. J., Bideford.
(2)
Williams, Mr. J. M., Pad-
stow.
Williamson, Mr. R., M. M.
(2)
- Williamson, Robert, Thurso,
N.B.
Williamson, W., Pilot, Wick,
N.B.
Wilson, J., Pilot, St. An-
drews.
Wilson, Mr. J., M. M.,
Liverpool.
Wilson, Ralph, Holy Island.
Wilson, T., Esq., M.P.*
Wilson, T., Pilot, Holy
Island.
Wilson, W., Pilot, Holy
Island.
Wishart, J., Wick, N.B.
Wood, Mr. T. L., Ct. G^d. (2)
Woodham, Lt., R.N.,
Banff, N.B.
Wordley, S., Harwich.
Wright, John, Seaman,
barque *Alceste* of Green-
ock.
Wright, Mr. J., M. M.
Wyatt, G., Seaman, Har-
wich.
Wylde, Lt. S., R.N., Ct. G^d.
Wyrill, H., Boatman, Scar-
borough.
- Young, A., Ct. G^d, Shore-
ham.
Young, A. H., Ct. G^d.
Blatchington.
Young, Lt. T., R.N., Ct. G^d.



THE LIFE-BOAT REGULATIONS.

THE following Regulations are intended for the guidance of the Local Committee formed at each place at which a Life-boat is stationed by the NATIONAL LIFE-BOAT INSTITUTION, and to whose care and control the Life-boat, her crew, and everything connected with her management and maintenance are entrusted.

The Local Committee to consist, if practicable, of not less than five persons usually resident, to be elected annually. The Inspecting-Commander of Coastguard of the division, or, in his absence, the nearest Coastguard officer to the spot, to be invited to become a member of the Local Committee.

1. The Life-boat's crew to consist of a coxswain-superintendent, an assistant coxswain, a bowman, and as many boatmen in addition as the boat pulls oars. On service a bowman should always go in the boat; but he is not required on occasions of exercise.

2. For every boat, at least double the number of men required (if they can be found at or near the spot) should be invited to become members of her crew.

3. Such men to consist of fishermen or other boatmen who are usually resident, and (with permission of the Admiralty) of any Coastguard men of the station who may volunteer for the service.

4. The salary of the coxswain-superintendent shall be 8*l.*, and that of the assistant coxswain 2*l.* annually. On every occasion of going afloat to save life, the coxswains and each of the crew shall receive alike from the Parent Institution, 10*s.* by day and 1*l.* by night; and for every time of going afloat for exercise, 4*s.* The Committee, however, reserve to themselves the power to add to those amounts on any special occasions, when unusual risk or exposure has been incurred.* In the absence of the coxswain, the assistant coxswain will take charge of the boat.

5. In the event of money being received by the Life-boat for salvage of property, or similar service, a proportion equal to the shares of two of the crew shall be paid to the Institution to cover risk of damage to the boat, the remainder being equally shared amongst the coxswain and crew.†

6. If voluntary local subscriptions or other payments be raised, or made, to reward any special act of gallantry or exertion, the Institution recommends that the whole of the money be paid to the crew, in equal shares.‡

* The Committee reserve to themselves the power to modify or withhold the usual payment in cases where the launching of Life-boats was manifestly unnecessary before they were put afloat.

† All claims on the owners of vessels for saving their property to be made in their own names by the coxswains and crews of Life-boats, to whom the Life-boats are lent for such service, and on no account in the name of the Institution.

‡ The coxswains and crews of Life-boats are strictly prohibited from making any claim on owners of vessels or others for saving life.

7. As at each Life-boat Station there will be a Local Committee, the coxswain will act under their immediate directions, and the boat, except in case of wreck, or other disaster, is never to be taken afloat without their sanction.*

8. As the efficiency of a Life-boat may often depend on the good training and discipline of her crew, the strictest attention must be paid by them to the directions of the coxswain on all occasions connected with the service. The boat shall be taken afloat for exercise, fully manned, once during each quarter, sometimes in *rough weather*, unless the boat has been out in that quarter, either on service or with one of the Inspectors.

9. The Local Committee at each station are requested to meet at the expiration of each quarter, and then to forward the usual Quarterly Report to the Institution, on the printed sheet provided for the purpose, as to the behaviour of the boat during exercise, &c., pointing out any defects that may require to be remedied, and offering any suggestions that may conduce to the efficiency of the service. Also generally to report on the state and condition of the Boat, the Carriage, the Boat House, and all the Life-boat gear. Should occasion for immediate repairs arise, the Local Committee are authorized to make them to the extent of 5*l.*: more extensive repairs to be referred, with an estimate, to the Parent Institution.

10. The boat is to be kept on her Carriage in the Boat House, with all her gear in her ready for use, except articles which may require to be secured from damp, and the lantern, which is only required for night service, and has first to be trimmed.

11. There should be three keys to the Boat House, kept in different places, with the *address of each painted on the door*; one in possession of the coxswain, and the others as the Local Committee may decide.

12. Immediately on intimation of a wreck, or of a vessel in distress, the coxswain is to use his utmost exertions to assemble his crew, launch the boat, and proceed to her assistance: and in the event of a sufficient number of his crew not being present, he is to select the best volunteers he can get to supply their places.†

13. If a wreck occur at some distance from the station, so as to require the boat to be transported along the coast, the coxswain is to send to procure sufficient horses (which, by the Wreck and Salvage Act, any magistrate, constable, or revenue officer may demand the use of), attach them to the carriage, and lose no time in making the best of his way with the crew to the scene of the wreck.

14. A reward of 7*s.* to be given to the man who first brings intelligence of a wreck at such a distance along the coast as not to be in sight from the Coastguard or other look-out.

15. A signal shall be agreed on by which the Life-boat crew can be

* It is desirable that each Local Committee should appoint one of their members, resident on the spot, to specially represent them, in conjunction with the Honorary Secretary, on occasions of wrecks.

† The coxswain is held responsible for every man who goes into the Life-boat on occasions of service and of quarterly exercise without having on a life-belt.

called together when required, such as a flag hoisted by day, and the firing of a carronade (or other alarm signal) twice, quick, by night.

16. On approaching a wreck, the coxswain will use his judgment, according to the circumstances of the case, whether he will board the wreck end on, either on the bow, on the quarter, or on the broadside ; or whether he will go to windward, drop his anchor, and veer down to the wreck ; or if he will lay her alongside.

17. On boarding wrecks, the preservation of life is to be the coxswain's *sole consideration*, and he is on no account to take in goods or merchandize which might endanger the safety of his boat, and the lives of those intrusted to his charge. And should any be brought in, contrary to his remonstrance, he is fully authorized to throw them overboard.

18. No one besides the coxswains and crew is to be allowed to go out in the Life-boat when going to a wreck, except with the express sanction of the Local Committee ; and on no account is any one to go in the boat without having on a life-belt.

19. The Life-boat is not to be used for taking off an anchor ; nor for the purpose of salvage ; nor for taking off stores, a pilot, or orders to a ship, *so as to interfere with private enterprise*, except in cases of emergency, when valuable property would be lost without such aid, but to be reserved for cases involving risk of life.

20. An entry is to be made, in the journal supplied for the purpose, of the particulars of all services performed by the Life-boat in saving or attempting to save life, being a duplicate of the official Reports of the same forwarded to the Institution, which journal will be retained at the station as a complete record of all the services which have been performed by the Life-boat.

21. On returning from service, the boat is not to be left in the surf on the beach, but, as soon as possible, is to be got on her carriage, and placed in the Boat House.

22. The coxswain-superintendent will be held responsible for the efficiency and general good order of the Boat House, the Boat, and her gear ; and it is hoped that a sense of the trust confided to them in the cause of humanity will lead the coxswains and crews to be most careful on these points, and to distinguish themselves by their zeal and readiness, and by the seaman-like manner in which their boats are handled.





THE INSTITUTION'S CHARTER OF INCORPORATION.

Victoria, by the grace of God of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, ~~To all to whom~~ these Presents shall come Extending.

Whereas the late SIR WILLIAM HILLARY, Baronet; the late MR. THOMAS WILSON, Member of Parliament, and others of Our loving subjects, did, in the year 1824, establish a Society by the name of "The ROYAL NATIONAL INSTITUTION FOR THE PRESERVATION OF LIFE FROM SHIPWRECK," and which title was altered in 1854, and the said Society is now designated "THE ROYAL NATIONAL LIFE-BOAT INSTITUTION, for the Preservation of Life from Shipwreck," and of which Society We have become Patron.

And whereas it has been represented to Us, that the same Society has since its establishment sedulously pursued such its proposed object by establishing efficient Life-boats on the points of the Coasts of the United Kingdom most exposed to Shipwreck, and organizing and training crews ready to man the Boats at all times in case of Wreck, and by granting pecuniary Rewards to the persons who man the Life-boats or otherwise assist in saving life from Shipwreck, and by conferring Honorary Gold and Silver Medals for distinguished Gallantry in such service.

And whereas the same Society is supported by Annual Subscriptions and Donations, and other Contributions to its Funds, and has a funded property of £14,114 1s. 7d. £3 per Cent. Reduced Bank Annuities.

And whereas in order to secure the property of the said Society, to extend its operations, and to place it on a more permanent basis, We have been besought to grant to ALGERNON PERCY DUKE OF NORTHUMBERLAND, Knight of the most Noble Order of the Garter, and a Vice-Admiral in Our Royal Navy, President; The Vice-Chancellor SIR WILLIAM PAGE WOOD, Knight, Vice-President; THOMAS BARING, Member of Parliament, Chairman; THOMAS CHAPMAN, Deputy-Chairman; Sir EDWARD GEORGE LAMBERT PERROTT, Baronet; JOHN BUNCE BONNEMAISON M'HARDY, a Rear-Admiral in Our Royal Navy; JOHN WASHINGTON, Captain in Our Royal Navy, and Hydrographer of the Admiralty; MON-

TAGUE GORE ; WILLIAM HENRY HARTON ; and GEORGE PALMER, Governors of the said Society, and to those who now are or shall hereafter become GOVERNORS of the said Society, Our Royal Charter of Incorporation, for the purposes aforesaid : ~~Now know ye~~ that We, being desirous of encouraging a design so laudable and benevolent, of Our special grace, certain knowledge, and mere motion, have willed, granted, and declared and ~~Do~~ by these Presents for Us, Our Heirs, and Successors, will, grant, and declare that the said ALGERNON PERCY DUKE OF NORTHUMBRLAND, Knight of the Most Noble Order of the Garter, a Vice-Admiral in Our Royal Navy ; The Vice-Chancellor SIR WILLIAM PAGE WOOD ; THOMAS BARING ; THOMAS CHAPMAN ; SIR EDWARD GEORGE LAMBERT PERROTT, Baronet ; JOHN BUNCE BONNEMAISON M'HARDY ; JOHN WASHINGTON ; MONTAGUE GORE ; WILLIAM HENRY HARTON ; and GEORGE PALMER, and such other of Our loving subjects as now are or shall hereafter become Governors of the said Society, according to such Regulations or Bye-Laws as shall be hereafter framed or enacted ; and their successors shall, for ever hereafter be, by virtue of these Presents, one body politic and corporate by the name of "THE ROYAL NATIONAL LIFE-BOAT INSTITUTION, for the Preservation of Life from Shipwreck," and for the purposes aforesaid, and by the name aforesaid, shall have perpetual succession and a Common Seal, with full power and authority to alter, vary, break, and renew the same at their discretion : and by the same name to sue and be sued, implead and be impleaded, answer and be answered unto, in every Court of Us, Our Heirs and Successors, and be for ever able and capable in the Law to purchase, receive, possess, hold, and enjoy to them and their successors, any goods and chattels whatsoever, and as well those now belonging to the said Society as those which may be hereafter acquired, and also to be able and capable in the Law (notwithstanding the Statutes of Mortmain) to take, purchase, hold, and enjoy to them and their successors, a Hall or House, and any such messuages, lands, tenements, or hereditaments whatsoever as may be necessary for carrying out the purposes of the Society, and as well those now belonging to the said Society as those which may be hereafter acquired, the yearly value of which, including the site of the said Hall or House, shall not exceed in the whole the sum of £2000, computing the same respectively at the rack-rent which might have been had or gotten for the same respectively at the time of the purchase or acquisition thereof ; and to act in all the concerns of the said body politic and corporate as effectually, to all intents and purposes, as any other of our liege subjects, or any other body politic or corporate in Our said Kingdom, not being under any disability, might do in their respective concerns.

And We do hereby grant our especial licence and authority unto all and every person and persons, bodies politic and corporate, otherwise competent, to grant, sell, alien, and convey in Mortmain unto and to the use of the said body politic and corporate, and their successors, any messuages, lands,

tenements, or hereditaments, not exceeding such annual value as aforesaid.

And Our will and pleasure is, and we further grant and declare that there shall be a General Meeting or General Meetings of the Governors of the said Society, to be held from time to time as hereinafter mentioned, and that there shall be a Committee of Management to direct and manage the concerns of the said body politic and corporate, and that the General Meetings and the Committee of Management shall have the entire direction and management of the same in the manner and subject to the regulations hereinafter mentioned.

And We do hereby also will, grant, and declare, that there shall be a President, Vice-Presidents, a Treasurer, Secretary, and Inspector of Life-boats of the said body politic and corporate, and that the Committee of Management shall consist of the President, Vice-Presidents, and Treasurer, and not more than 40, nor less than 15 other Governors of the said Society.

And We do hereby further will and declare that the said ALGERNON PERCY DUKE OF NORTHUMBERLAND shall be the first President of the said body politic and corporate and the other persons now being the Vice-Presidents, and Treasurer, together with those of the Governors now constituting the Committee of Management, shall be the first Members of the Committee of Management, and shall continue such until the election of officers shall be made in pursuance of these Presents.

And We do hereby further will and declare that RICHARD LEWIS, Barrister-at-Law, shall be the first Secretary of the said body politic and corporate, and JOHN ROSS WARD, Captain of Our Royal Navy, shall be the first Inspector of Life-boats of the said body politic and corporate.

And We do hereby further will and declare that it shall be lawful for the Governors of the said body politic and corporate hereby established, to hold General Meetings for the purposes hereinafter mentioned, namely, That the President, Vice-Presidents, and the Treasurer, and other members of the Committee of Management, shall be chosen at such General Meeting, and that the General Meeting shall from time to time make and establish such Bye-laws, and vary and alter or revoke the same as they shall deem to be useful and necessary for the regulation of the said body politic and corporate, and for fixing the number of the Presidents, Vice-Presidents, and Officers, and for the management of the proceedings and the estates, goods, and business of the said body politic and corporate, so that such Bye-laws be not repugnant to these Presents or to the Laws and Statutes of this Our Realm, and shall and may also enter into any resolution, and make any regulation respecting the affairs of the said body politic and corporate that may be necessary and proper.

And We do further will and declare that a General Meeting shall be held

at least once between the 1st day of January in every year and the 1st day of January in the year next ensuing ; and all General Meetings shall take place at such time as may be fixed by the said Committee of Management, and that the present Regulations of the said Society, so far as they are not inconsistent with these Presents, shall continue in force until the same shall be altered by a General Meeting.

And We further will, grant, and declare that, notwithstanding anything herein contained, the Committee of Management shall have the sole management of the income and funds of the said body politic and corporate, and the power to appoint and remove the Secretary and Life-boat Inspector, and such other officers, attendants, and servants as the Committee of Management shall think necessary or useful, as also the entire management and superintendence of all the other affairs of the said Society, and shall and may, but not inconsistently with or contrary to the provisions of this Our Charter or any existing Bye-Law or Laws, or the Laws and Statutes of this Our Realm, do all such acts and deeds as shall appear to them necessary for carrying into effect the objects and views of the said body politic and corporate.

~~Provided~~ always, and We do will and declare that the Committee of Management shall, from time to time, and at least once in each year, render to a General Meeting a full account of their proceedings, and that every Governor of the Society may, at all reasonable times, to be fixed by the said Council, see and examine the accounts of the receipts and payments of the said body politic and corporate.

And We do further will, grant, and declare, that no sale, mortgage, incumbrance, or other disposition of any messuages, lands, tenements, or hereditaments belonging to the said body politic and corporate, shall be made except with the approbation and concurrence of a General Meeting.

And We do further will and declare that it shall be lawful for the Committee of Management of the said Society, with the approbation and concurrence of a General Meeting, from time to time, to appoint any persons to be Trustees of any part of the property of the said body politic and corporate, and to make, or direct to be made, any Conveyance or transfer to such Trustees.

In ~~Witness~~ whereof We have caused these our Letters to be made Patent. ~~Witness~~ Ourself, at our Palace at Westminster, this 24th day of April, in the Twenty-third year of Our Reign.

By Her Majesty's Command,

Edmunds.

SAILING IN SELF-RIGHTING LIFE-BOATS.

SOME of the Institution's Life-boats having upset, when under sail, the Committee think it necessary to remind the coxswains and crews of the self-righting Life-boats, that, as their boats are constructed both to row and sail, and are also of light draught to enable them to be launched from flat shores, it is not practicable to give them either sufficient ballast or sufficient width to enable them to carry very large sails.

They should not, therefore, be overpressed with canvas, nor should the sheets be ever belayed. It should likewise be borne in mind that no boat will sail better with her gunwale under water than on a more even keel, and, at the same time, that stability is necessarily much diminished when there is a large body of water within a boat, settled on one side.

TOWING LIFE-BOATS.

1. ON no account is any Life-boat belonging to the NATIONAL LIFE-BOAT INSTITUTION to be towed, either by a steamer or sailing-vessel, without her crew being in her, or at least a sufficient number of men to manage her, in the event of her breaking adrift, or having to cast off from the towing-vessel.

2. A Life-boat may be towed by either one or two tow-ropes. If the former be adopted, it is recommended to tow with a long scope, from forty to sixty fathoms, the tow-rope being rove through a fair-leader or lizard at the stem-head, and secured to a bollard shipped in the trunk or tabernacle of the foremast.

If towed with two ropes, one from each quarter of the towing-steamer, they should not be taken to the stem of the 'boat, but be made fast, one to each bow ; for which purpose the Life-boats are fitted with a large ring, or belaying pin, on each bow. In either case the crew should be seated well aft in the boat to weight her by the stern, excepting one man forward with a small hatchet by him, ready to cut the tow-rope in a moment if it should become necessary.

The Liverpool Life-boats, which are very frequently taken in tow, always use a single tow-rope, and in a heavy sea tow with a long rope, sometimes as much as sixty fathoms. They are always towed with their crews on board, who sit well aft to weight them at the stern. When towed by a paddle-steamer, they usually sheer off and tow well on the quarter, so as to be out of the wash of the paddle-wheels.

3. A Life-boat will always be found to tow better against a heavy head-sea than away from one, as there will be a more steady and regular strain

on her, and she will tow less wildly, and therefore with less violent jerks and strain on the tow-rope.

The Liverpool coxswains, in reply to queries put to them on the subject some years since by the Marine Surveyor to the Mersey Dock Board, stated that, in a long, heavy sea, they considered a boat more safe in tow than under sail ; but in a short sea with irregular break, as at the meeting of currents or on the edge of banks, the contrary. They also consider it safer to tow against a heavy sea than before a running one.

The danger when towing a Life-boat before a heavy sea may be much lessened by towing a drogue astern of the boat, to prevent her running ahead in front of a sea (at risk of damage against towing-vessel), and to keep up a more equable strain on the tow-rope.



SIGNALS FOR LIFE-BOAT STATIONS.

THE want having been often felt of some general system of signals for intercommunication, on occasions of Shipwreck, between Life-boat Stations when within signal distance of each other, the Committee have caused the following simple plan to be prepared, and have supplied various Stations of the Society with the necessary rockets, signal-lights, flags, and flag-posts, for carrying the same into effect.

It will be readily conceived that the circumstances attending Shipwrecks and Life-boat service are such as to make any complicated or extended system of signals for use on such occasions altogether impracticable, and that the extremest brevity and simplicity are indispensable.

In preparing this sheet of signals, that fact has been borne in mind, and no more has been attempted than is absolutely necessary, or than can be readily practised by the Life-boat crews on our coasts.

A circular letter was sent to each Life-boat Station with the signals, having the following description of them and the means for making them :—

“To enable the accompanying system of signals to be carried into effect, you will in a few days receive a Tin Box, containing 12 Red and 12 Green Meteor Rockets, 12 Red and 12 Green patent hand Signal-lights (with 2 dischargers for igniting them by percussion), and 6 common fuses or port-fires.

“Also a bundle of staves for the rockets, a portable tripod stand from which to fire them, and two red flags, one for use ashore, the other for the boat, to be always kept in her.

“The Rockets burst with a Red or Green Star, which remains alight for about 15 or 20 seconds. In discharging them, the thick-pointed end of the staff must be pushed hard into or through the socket at the side of the rocket to prevent the latter leaving the staff and spoiling its flight. They should be thrown up perpendicularly.

“The Hand-lights ignite by a blow at the end of the discharging handle, which drives a wire needle into them. They will burn for about three-quarters of a minute.

“The Portfires have to be lit with a common match or fusee, and will burn about 15 minutes.

“The Rockets and Hand-lights will be painted the same colour as that which they exhibit when ignited, so that they may be readily distinguished when required for use.

“There are two dischargers sent, so that one can be used in the boat, and the other on the shore.

"The Tin Box should be kept in a dry spot, in the loft, and one of the keys might be hung up there, and the other at the coxswain's house.

"*To the Honorary Secretary of the*
Branch."

The following are the signals adopted with a view to give information to neighbouring Life-boat Stations when they are within short distances of each other, and also to Vessels in distress.

PRELIMINARY—

RED to signify a danger seen requiring help. GREEN to signify that help was about to be, or has been, afforded.

NIGHT SERVICE—

1. On a vessel being seen on shore or in danger, or signals of distress from any vessel being observed, or on Rockets being thrown up from any light-ship, two Rockets, bursting with a Red Star, to be thrown up at two or three minutes' interval at a Life-boat Station. To be answered by a Red-star Rocket from adjoining Stations as soon as observed.

This signal would serve the double purpose of informing the adjoining Life-boat Stations that the danger was seen, and the Life-boat about to be launched, and of intimating to the crew of the endangered vessel that help was preparing for them.

2. As soon as the Life-boat has been launched, a Rocket bursting with a Green Star to be thrown up.

This signal would inform the adjoining Life-boat Stations that the Life-boat was on its way to the wreck.

3. On arriving near the distressed vessel, a Red Percussion Hand-light to be displayed by the Life-boat.

This would show to the Life-boat Stations on shore that the Life-boat had arrived at the vessel, and would likewise inform those in distress that *help was close at hand.*

4. If in consequence of there being a larger number of persons in the vessel than could be taken into the Life-boat, or of any accident to the latter, further aid should be required, then the Life-boat to continue to burn Red Hand-lights, at short intervals, until answered from the shore by a Red Hand-light or Red-star Rocket.

5. On the safe arrival of a Life-boat with the whole or part of a wrecked crew on shore, a Green Hand-light, or Green-star Rocket, to be shown at the station or at the place of landing.

This would inform the adjoining Life-boat Stations that the whole or part of the Shipwrecked men had been safely landed.

DAY SERVICE—

A Red Flag to be substituted for the Red Light and Red-star Rockets, and a Whiff for Green Lights and Green-star Rockets.

NOTE.—Rockets are not sent to all stations, but only to those where they are considered to be necessary.

SIGNALS OF DISTRESS.

Required to be used and displayed on and after the 1st November, 1873, in accordance with the 18th section of the Merchant Shipping Act, 1873.

“*In the Day-time.*—The following signals, numbered 1, 2, and 3, when used or displayed together or separately, shall be deemed to be signals of distress in the day-time :—

“1. A gun fired at intervals of about a minute.

“2. The International Code signal of distress indicated by N.C.*

“3. The distant signal consisting of a square flag, having either above or below it a ball, or anything resembling a ball.

“The following signals, numbered 1, 2, and 3, when used or displayed together or separately, shall be deemed to be signals of distress at night :—

“1. A gun fired at intervals of about a minute.

“2. Flames on the ship (as from a burning tar barrel, oil barrel, &c.).

“3. Rockets or shells of any colour or description fired one at a time at short intervals.”

And “Any Master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay COMPENSATION for any labour undertaken, risk incurred, or loss sustained, in consequence of such signal having been supposed to be a signal of distress ; and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.”

SIGNALS FOR PILOTS.

Required to be used and displayed on and after the 1st November, 1873, in accordance with the 19th section of the Merchant Shipping Act, 1873, if a vessel requires the services of a Pilot.

“*In the Day-time.*—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot in the day-time :—

“1. To be hoisted at the fore, the jack or other national colour usually

* This consists of a blue and white “chequered” square flag, hoisted over a burgee owing a red ball on a white ground.

worn by merchant ships, having round it a white border, one-fifth of the breadth of the flag ; or

" 2. The International Code pilotage signal indicated by P.T.*

" *At Night.*—The following signals, numbered 1 and 2, when used or displayed together or separately, shall be deemed to be signals for a pilot at night :—

" 1. The pyrotechnic light, commonly known as a blue light, every fifteen minutes ; or

" 2. A bright white light, flashed or shown at short or frequent intervals, just above the bulwarks, for about a minute at a time."

And " Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals for any other purpose than that of summoning a pilot, or uses or causes or permits any person under his authority to use any other signal for a pilot, shall incur a PENALTY not exceeding twenty pounds."

* This is a square blue flag, having in its centre a white square, hoisted over a flag of a similar shape—the latter showing three vertical bars, colored red, white, and blue.



SALVAGE OF PROPERTY BY LIFE-BOATS.

THE coxswains and crews of the Life-boats belonging to the NATIONAL LIFE-BOAT INSTITUTION will be guided by the following Rules in all cases when they use the Life-boats to assist in saving vessels or other property :—

In accordance with the 19th section of the Life-boat Regulations, the Life-boats of the Institution are not, as a general rule, to be employed to save property, so as to interfere with private enterprise. When, however, other aid is not available, their crews are at liberty to use them on the following conditions :—

1st. On all occasions when used to save vessels or property, their crews will consider that they are lent to them for that purpose, and will look to be paid for the same by the owners of the property saved, and not by the Institution.

2nd. They are never to be launched expressly to perform such service, when lives are not endangered, without the sanction of the Honorary Secretary or other representative of the Local Committee of Management. When, however, a Life-boat has been launched to save life, and on reaching a wrecked vessel, it is thought that the latter may be also saved with the aid of the Life-boat's crew, the coxswain will use his own discretion in allowing his crew to afford such aid or not.

3rd. The greatest care must be taken of the boats, and they are never, on such occasions, to be exposed to serious risk of damage or destruction.

4th. Their crews are not to make exorbitant demands from the owners of property saved.

5th. To cover risk of damage to the boats, two shares of all salvage payments received—that is, a sum equal to the shares of two men of the crew—to be paid to the Institution.

All claims on the owners of vessels for saving their property must be made by the coxswains and crews of Life-boats, to whom the Life-boats are lent for such extra service, and on no account is the claim to be made in the name of the Institution.

In those cases when vessels and their crews are saved by the Life-boats, and when the salvage payments made by the owners are less in amount than the usual award of the Institution for saving lives, the Institution will make up the deficiency to the Life-boat men.

SERVICES OF LIFE-BOATS TO DISTRESSED VESSELS.

As it often happens that the Life-boats of the NATIONAL LIFE-BOAT INSTITUTION are called on to aid in saving vessels and their cargoes from

destruction, whilst the owners of such property have not unfrequently objected to paying the Life-boat men for their services (believing that they are only performing their duty by rendering them aid), it is thought desirable that the owners of ships and merchandise should be made acquainted with the principles by which the Institution is actuated in the matter of saving *wrecked property*, and the terms on which it allows its boats to be used in saving it.

In the first place then, it cannot be too plainly stated or too generally known that the NATIONAL LIFE-BOAT INSTITUTION is a Society established for the *saving of human lives*, and that only. It appeals to the British public to support it for that object, and that object alone. It has, therefore, no right to devote any part of the funds so raised to providing means for saving property, or for any other object than the philanthropic one which is its especial vocation.

Accordingly, it is a misapprehension on the part of the owners of property at sea to suppose that it is the duty of the men who work the Institution's Life-boats on the coast, to give their services gratuitously to effect its preservation. The Institution pays them for devoting their time and labour, and for risking their lives, to save the lives of others, and it has no claim on them to do more.

On the other hand, however, it is felt that, in the interests of humanity, valuable property which has been produced by the "sweat of man's brow" should not be allowed to perish beneath the waves, if it can be saved. The Institution, therefore, authorizes the crews of its Life-boats to assist in saving vessels stranded, or leaky, or otherwise in distress, under special circumstances and on certain terms. In permitting those services, and in arranging those terms, a general principle had to be decided on, and such service being altogether distinct from the function of the Institution, it was considered expedient to separate it, as far as possible, from the more legitimate employment of its boats; to effect which it was arranged that, on all occasions of using the Institution's Life-boats to save property, they were to be considered as lent to their crews for that purpose, and that the latter should look to the owners of the property to remunerate them, in accordance with the provisions of the "Merchant Shipping Act," and not to the Institution.

The conditions on which the Life-boats are lent to their crews for such service are as follows :—

1st. That they are on no account to be used in the salvage of property so as to interfere with private enterprise, when any other boats are available, and can be safely employed.

2nd. That they are never to be launched and taken afloat expressly to perform such service, when lives are not endangered, without the sanction of the Local Honorary Secretary, or other representative of the Local Committee of Management.

3rd. That the greatest care is to be taken of them, and that they are never, on such occasions, to be unnecessarily exposed to serious risk of damage or destruction.

4th. That their crews are not to make exorbitant demands for payment from the owners of the property saved in proportion to the service rendered.

5th. That to cover risk of damage to the boats two shares of all salvage payments received, *i. e.* an equivalent to the shares of two of the crew, shall be paid to the Institution.

The utility of the first three of the above conditions will be obvious, and need not be further commented on; the two last call for some observations:—

With regard to the fourth, it is hardly possible that any rule which could be devised would altogether prevent disputes arising between crews of Life-boats and the owners of property saved by them, since different elements have to be considered in determining the amount of the payment to which the salvors of property are fairly entitled, *viz.*: 1. The value of the property saved. 2. The certainty of its loss, or the degree of risk of loss to which it would have been exposed, but for the salvors' aid. 3. The amount of time and labour expended, and the difficulty, exposure to wet and cold, or risk of life incurred by the salvors. It is evident, therefore, that the character and value of such services must be of the most varied character; and that the owners of property saved, and the salvors, whose interests lie in opposite directions, will be likely to form very different estimates of their value. The Legislature, sensible of the difficulties surrounding such cases, has, by the "Merchant Shipping Act of 1854," only stated that the salvors of property from loss at sea shall be entitled to "reasonable compensation," but it has made ample provision for settling all points in dispute. 1. By empowering the "receivers of wreck" to arbitrate between the salvors and owners of property, with the mutual consent of each party. 2. By authorizing any two magistrates of the locality to fix the amount of payment in cases under 200*l.*, where the parties cannot come to a mutual agreement. 3. By admitting appeal to the "High Court of Admiralty," in cases above 200*l.* in amount of demand, and in all cases, when the contending parties, or either of them, are not satisfied with the decision of the local magistrates. And, 4. By ultimate appeal to the Privy Council.

All, therefore, that the Institution can do in the interest of the shipowner or owner of cargo, in such cases, in addition to allowing the use of its boats, is to urge its crews not to make "exorbitant demands" on owners for payment, it having no power to remove such cases from the legal jurisdiction of the country. It should also be remembered that the crews of the Institution's Life-boats are not a body of enrolled men, retained by permanent wages, but that they are formed from volunteers of the local fishermen or other boatmen, and in some instances of Coastguard men, who are only employed for the occasion, and paid "for saving or endeavouring to save human life," and for that only.

The 5th condition, *viz.*, the payment of two shares of all salvage receipts to the Institution, calls for some explanation, as it is liable to be misunderstood. It may, then, be distinctly stated that it is not imposed as a source

of profit to the Institution ; the first intention, as already implied, being to cover risk of damage, since without such equivalent it is not considered that the Institution would be justified in allowing its boats to be put to a use so distinct from that for which its supporters have provided them ; whilst a second desirable effect of this condition is, that the boatmen are thereby induced to use their own boats, in preference to the Life-boats, for the salvage of property, whenever it is practicable to do so, since they have then no deduction made from the salvage awards which they may earn.

It is considered that such an arrangement cannot but be beneficial to all parties :—the owners or insurers of a valuable ship and cargo are fortunate in having their property saved at a small percentage—the crew of the Life-boat, always poor men, receive a handsome payment, calculated to increase their attachment to the Life-boat service—whilst the Institution obtains a sufficient amount to cover risk of damage to its boat.

The coxwains and crews of the Life-boats of the Institution are strictly prohibited from making any claim upon owners of vessels, or others, for saving life—as the Institution alone pays for such services.

This Memorandum has been prepared, by the direction of the Committee, for the information of the owners of ships and cargoes.

REWARDS FOR SAVING LIFE BY SHORE BOATS.

The following is a copy of a handbill circulated on the coasts of the United Kingdom by the Institution, for the purpose of informing boatmen and others that it encourages laudable exertions to save life from Shipwrecks :—

TO BOATMEN AND OTHERS.

To encourage prompt and energetic exertions in time of danger on the part of boatmen and others, by quickly putting off to save life in CASES of WRECKS on the coasts of the British Isles, either by shore boats or other means,

THE ROYAL NATIONAL LIFE-BOAT INSTITUTION

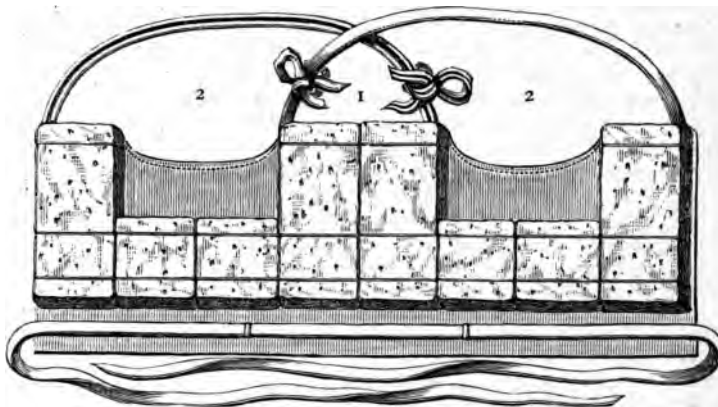
grants rewards of money or medals. In all cases the rewards are given without further delay than is necessary to obtain proof of the merits of each case, and to insure their being paid to the right parties.

Application to be made to the Secretary.

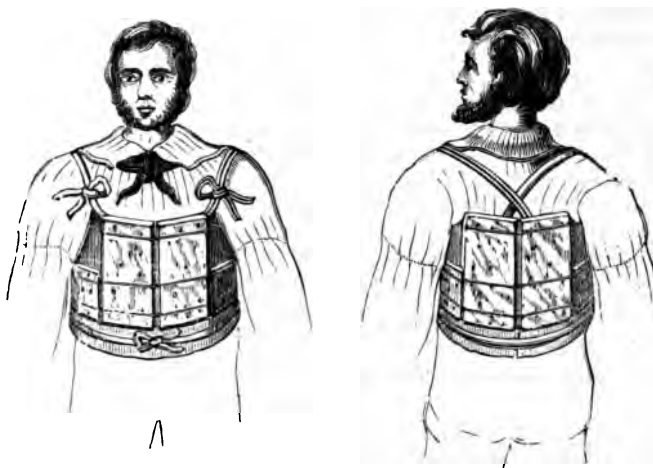
By Order of the Committee.

ROYAL NATIONAL LIFE-BOAT INSTITUTION,
14 John Street, Adelphi, London, W.C.

CAPTAIN WARD'S CORK LIFE-BELT FOR SHIPS' CREWS.



VIEW OF LIFE-BELT, WITH THE SHOULDER-STRINGS TIED AS WORN.



LIFE-BELT AS WORN—FRONT AND BACK VIEW.

As it is important that the belts should be kept together, and protected from the weather, yet be at all times accessible, they should be kept in a chest, stowed and lashed on the upper deck, each belt with the upper or shoulder-strings ready tied in a half-bow, so that it can be put quickly on, over the head, without untying, the belts being occasionally examined and exposed to the air in dry weather, and the crew being shown the manner of putting them on. To put them on without untying, the head should be put through the central opening (1), and the arms through the side openings (2). The lower or waist-strings are then brought round from behind, and tied in front. The shoulder-strings, it will be observed, cross behind, like trouser-braces : they should be drawn tightly over the shoulders, so as to keep the belt close up under the arms, and being tied close to the breast-corks in front, they can be readily pulled up tighter and re-tied at pleasure. They will not interfere with the free use of the arms either in rowing or swimming.

TO SHIPOWNERS AND MASTER MARINERS.

NOTICE is hereby given,—

That the ROYAL NATIONAL LIFE-BOAT INSTITUTION, with a view to assist in saving the lives of our merchant seamen under circumstances of Shipwreck when they cannot be rescued by means provided on the shore, is prepared to supply chests of efficient cork life-belts, at a very low price, on board merchant vessels.

The value of these simple and inexpensive instruments has been proved in too many cases to need any argument in their favour ; and no doubt is entertained that their general adoption in our merchant vessels would be the means of saving many valuable lives.

Applications to be supplied with chests of life-belts to be made to the Institution, through the Collectors of Customs, Shipping Masters, and Superintendents of Sailors' Homes at the several ports to which the vessels belong, or from which they sail ; the Honorary Secretaries of the Branches of the Institution ; or direct to the wholesale manufacturers, Messrs. J. & A. W. BIRT, 4, Dock Street, London Docks, London, E.

Sample chests of two sizes may be seen at some of the principal Custom Houses, Shipping Offices, and Sailors' Homes of the United Kingdom.

The smaller chests contain six belts ; the largest ones twelve. The cost of these belts is 5s. each, when bought in chests, or in any number above six ; and that of a single belt, 6s.

The belts are of two sizes, and are distinguished by the colour of the shoulder-strings.

The price of the chests *alone* varies from 15s. to 21s.

By Order of the Committee.

ROYAL NATIONAL LIFE-BOAT INSTITUTION,
London, John Street, Adelphi.

**ON THE MANAGEMENT OF OPEN ROWING-BOATS IN A SURF;
BEACHING THEM, &c.**

THE NATIONAL LIFE-BOAT INSTITUTION, some time since, collected information from 128 different places on the coasts of the United Kingdom regarding the system of management of boats in a surf and broken water, pursued by fishermen and other coast boatmen.

It has appeared to the Committee of the Institution that the information obtained in this manner and in other ways may with advantage be published and circulated, for the guidance of those who may have insufficient experience in the management of boats under such circumstances.

Rules for the management of boats in a surf and broken water naturally fall under two heads, viz.—1st. Their management when proceeding from the shore to seaward against the direction of the surf. 2nd. Their management under the opposite circumstances of running for the shore before a broken sea.

Before stating the course to be pursued under each head, we may remark that it is an axiom almost universally acknowledged, that there is, as a general rule, far more danger when running for the shore before a broken sea, than when being propelled against it on going from the land; the danger consisting in the liability of a boat to broach-to and upset, either by running her bow under water, or by her being thrown on her beam-ends, and overturned broadside on.

RULES OF MANAGEMENT.

I. IN ROWING TO SEAWARD.

As a general rule, speed must be given to a boat rowing against a heavy surf. Indeed, under some circumstances, her safety will depend on the utmost possible speed being attained on meeting a sea. For if the sea be really heavy, and the wind blowing a hard on-shore gale, it can only be by the utmost exertions of the crew that any headway can be made. The great danger then is, that an approaching heavy sea may carry the boat away on its front, and turn it broadside on, or up-end it, either effect being immediately fatal. A boat's only chance in such a case, is to obtain such way as shall enable her to pass, end on, through the crest of the sea, and leave it as soon as possible behind her. Of course if there be a rather heavy surf, but no wind, or the wind off shore, and opposed to the surf as is often the case, a boat might be propelled so rapidly through it, that her bow would fall more suddenly and heavily after topping the sea, than if her way

had been checked ; and it may therefore only be when the sea is of such magnitude, and the boat of such a character, that there may be chance of the former carrying her back before it, that full speed should be given to her.

It may also happen that, by careful management under such circumstances, a boat may be made to avoid the sea, so that each wave may break ahead of her, which may be the only chance of safety in a small boat ; but if the shore be flat, and the broken water extend to a great distance from it, this will often be impossible.

The following general rules for rowing to seaward may therefore be relied on :—

1. If sufficient command can be kept over a boat by the skill of those on board her, avoid or “dodge” the sea if possible, so as not to meet it at the moment of its breaking or curling over.
2. Against a head gale and heavy surf, get all possible speed on a boat on the approach of every sea which cannot be avoided.
3. If more speed can be given to a boat than is sufficient to prevent her being carried back by a surf, her way may be checked on its approach, which will give her an easier passage over it.

II. ON RUNNING BEFORE A BROKEN SEA, OR SURF, TO THE SHORE.

The one great danger, when running before a broken sea, is that of *broaching-to*. To that peculiar effect of the sea so frequently destructive of human life, the utmost attention must be directed.

The cause of a boat's *broaching-to* when running before a broken sea or surf is, that her own motion being in the same direction as that of the sea, whether it be given by the force of oars or sails, or by the force of the sea itself, she opposes no resistance to it, but is carried before it. Thus if a boat be running with her bow to the shore, and her stern to the sea, the first effect of a surf or roller, on its overtaking her, is to throw up the stern, and as a consequence to depress the bow ; if she then has sufficient inertia (which will be proportional to weight) to allow the sea to pass her, she will in succession pass through the descending, the horizontal, and the ascending positions, as the crest of the wave passes successively her stern, her midships, and her bow, in the reverse order in which the same positions occur to a boat propelled to seaward against a surf. This may be defined as the safe mode of running before a broken sea.

But if a boat, on being overtaken by a heavy surf, has not sufficient inertia to allow it to pass her, the first of the three positions above enumerated alone occurs—her stern is raised high in the air, and the wave carries the boat before it, on its front, or unsafe side, sometimes with frightful velocity, the bow all the time deeply immersed in the hollow of the sea, where the water, stationary or comparatively so, offers a resistance, whilst the crest of the sea, having the actual motion which causes it to break, forces onward the stern, or rear end of the boat. A boat will in this position sometimes, aided by careful oar-steering, run a considerable

distance until the wave has broken and expended itself. But it will often happen, that if the bow be low, it will be driven under water, when the buoyancy being lost forward, whilst the sea presses on the stern, the boat will be thrown (as it is termed) end over end ; or if the bow be high, or it be protected, as in most Life-boats, by a bow air-chamber, so that it does not become submerged, that the resistance forward, acting on one bow, will slightly turn the boat's head, and the force of the surf being transferred to the opposite quarter, she will in a moment be turned round broadside by the sea and be thrown by it on her beam-ends, or altogether capsized. It is in this manner that most boats are upset in a surf, especially on flat coasts, and in this way many lives are annually lost amongst merchant seamen when attempting to land, after being compelled to desert their vessels.

Hence it follows that the management of a boat, when landing through a heavy surf, must as far as possible be assimilated to that when proceeding to seaward against one, at least so far as to stop her progress shoreward at the moment of being overtaken by a heavy sea, and thus enabling it to pass her. There are different ways of effecting this object :—

1. By turning a boat's head to the sea before entering the broken water, and then backing in stern foremost, pulling a few strokes ahead to meet each heavy sea, and then again backing astern. If a sea be really heavy and a boat small, this plan will be generally the safest, as a boat can be kept more under command when the full force of the oars can be used against a heavy surf, than by backing them only.

2. If rowing to shore with the stern to seaward, by backing all the oars on the approach of a heavy sea, and rowing ahead again as soon as it has passed to the bow of the boat, thus rowing in on the back of the wave ; or, as is practised in some Life-boats, placing the after-oarsmen, with their faces forward, and making them row back at each sea on its approach.

3. If rowed in bow foremost, by towing astern a pig of ballast or large stone, or a large basket, or a canvas bag termed a "drogue" or drag, made for the purpose, the object of each being to hold the boat's stern back, and prevent her being turned broadside to the sea or broaching-to.

Drogues are in common use by the boatmen on the Norfolk coast ; they are conical-shaped bags of about the same form and proportionate length and breadth as a candle extinguisher, about two feet wide at the mouth, and four and a half feet long. They are towed with the mouth foremost by a stout rope, a small line, termed a tripping-line, being fast to the apex or pointed end. When towed with the mouth foremost, they fill with water, and offer a considerable resistance, thereby holding back the stern ; by letting go the stouter rope and retaining the smaller line, their position is reversed, when they collapse, and can be readily hauled into the boat.

Drogues are chiefly used in sailing-boats, when they both serve to check a boat's way and to keep her end on to the sea. They are, however, a great source of safety in rowing-boats, and the rowing Life-boats of the NATIONAL LIFE-BOAT INSTITUTION are now all provided with them.

A boat's sail bent to a yard and towed astern loosed, the yard being

attached to a line capable of being veered, hauled, or let go, will act in some measure as a drogue, and will tend much to break the force of the sea immediately astern of the boat.

Heavy weights should be kept out of the extreme ends of a boat ; but when rowing before a heavy sea the best trim is deepest by the stern, which prevents the stern being readily thrown on one side by the sea.

A boat should be steered by an oar over the stern, or on one quarter when running before a sea, as the rudder will then at times be of no use. If the rudder be shipped, it should be kept amidships on a sea breaking over the stern.

The following general rules may therefore be depended on when running before, or attempting to land, through a heavy surf or broken water :—

1. As far as possible avoid each sea by placing the boat where the sea will break ahead or astern of her.

2. If the sea be very heavy, or if the boat be very small, and especially if she have a square stern, bring her bow round to seaward and back her in, rowing ahead against each heavy surf that cannot be avoided sufficiently to allow it to pass the boat.

3. If it be considered safe to proceed to the shore bow foremost, back the oars against each sea on its approach, so as to stop the boat's way through the water as far as possible, and if there is a drogue, or any other instrument in the boat which may be used as one, tow it astern to aid in keeping the boat end on to the sea, which is the chief object in view.

4. Bring the principal weights in the boat towards the end that is to seaward, but not to the extreme end.

5. If a boat, worked by both sails and oars, be running under sail for the land through a heavy sea, her crew should, under all circumstances, unless the beach be quite steep, take down her masts and sails before entering the broken water, and take her to land under oars alone, as above described. If she have sails only, her sails should be much reduced, a half-lowered foresail or other small headsail being sufficient.

III. BEACHING OR LANDING THROUGH A SURF.

The running before a surf or broken sea, and the beaching or landing of a boat, are two distinct operations : the management of boats as above recommended, has exclusive reference to running before a surf where the shore is so flat that the broken water extends to some distance from the beach. Thus on a very steep beach, the first heavy fall of broken water will be on the beach itself, whilst on some very flat shores there will be broken water as far as the eye can reach, sometimes extending to even four or five miles from the land. The outermost line of broken water, on a flat shore, where the waves break in three and four fathoms water, is the heaviest, and therefore the most dangerous, and when it has been passed through in safety, the danger lessens as the water shoals, until, on nearing the land, its force is spent and its power harmless. As the character of the sea is quite different on steep and flat shores, so is the customary management

of boats on landing different in the two situations. On the flat shore, whether a boat be run or backed in, she is kept straight before or end on to the sea until she is fairly aground, when each surf takes her farther in as it overtakes her, aided by the crew, who will then generally jump out to lighten her, and drag her in by her sides. As above stated, sail will in this case have been previously taken in if set, and the boat will have been rowed or backed in by oars alone.

On the other hand, on the *steep* beach it is the general practice, in a boat of any size, to retain speed right on to the beach, and in the act of landing, whether under oars or sail, to turn the boat's bow half round towards the direction from which the surf is running, so that she may be thrown on her broadside up the beach, where abundance of help is usually at hand to haul her as quickly as possible out of the reach of the sea. In such situations, we believe, it is nowhere the practice to back a boat in stern foremost under oars, but to row in under full speed as above described.

IV. BOARDING A WRECK, OR A VESSEL, UNDER SAIL OR AT ANCHOR, IN A HEAVY SEA.

The circumstances under which Life-boats or other boats have to board vessels, whether stranded or at anchor, or under way, are so various that it would be impossible to draw up any general rule for guidance. Nearly everything must depend on the skill, judgment, and presence of mind of the coxswain or officer in charge of the boat, who will often have those qualities taxed to the utmost, as undoubtedly the operation of boarding a vessel in a heavy sea or surf is frequently one of extreme danger.

It will be scarcely necessary to state that, whenever practicable, a vessel, whether stranded or afloat, should be boarded to leeward, as the principal dangers to be guarded against must be the violent collision of the boat against the vessel; or her swamping or upsetting by the rebound of the sea, or by its irregular direction on coming in contact with the vessel's side; and the greater violence of the sea on the windward side is much more likely to cause such accidents. The danger must, of course, also be still further increased when the vessel is aground and the sea breaking over her. The chief danger to be apprehended on boarding a stranded vessel on the lee side, if broadside to the sea, is the falling of the masts; or if they have been previously carried away, the damage or destruction of the boat amongst the floating spars and gear alongside. It may, therefore, under such circumstances, be often necessary to take a wrecked crew into a Life-boat from the bow or stern; otherwise a rowing-boat, proceeding from a lee shore to a wreck, by keeping under the vessel's lee, may use her as a break-water, and thus go off in comparatively smooth water, or be at least shielded from the worst of the sea. This is, accordingly, the usual practice in the rowing Life-boats around the United Kingdom. The larger sailing Life-boats, chiefly on the Norfolk and Suffolk coasts, which go off to wrecks on out-lying shoals, are, however, usually anchored to windward of stranded vessels, and then veered down to 100 or 150 fathoms of cable, until near

enough to throw a line on board. The greatest care under these circumstances has, of course, to be taken to prevent actual contact between the boat and the ship ; and the crew of the latter have sometimes to jump overboard, and to be hauled to the boat by ropes.

In every case of boarding a wreck or a vessel at sea, it is important that the lines by which a boat is made fast to the vessel should be of sufficient length to allow of her rising or falling freely with the sea ; and every rope should be kept in hand ready to cut or slip it in a moment if necessary. On wrecked persons or other passengers being taken into a boat in a seaway, they should be placed on the thwarts in equal numbers on either side, and be made to sit down. All crowding or rushing headlong into the boat should be prevented as far as possible ; and the captain of the ship, if a wreck, should be called on to remain on board to preserve order until every other person had left her.

PRACTICAL HINTS FOR THE CONSIDERATION AND GUIDANCE OF MERCHANT SEAMEN AND OTHERS HAVING CHARGE OR COMMAND OF BOATS.

1. Acquire the habit of sitting down in a boat, and never stand up to perform any work which may be done sitting.

2. Never climb the mast of a boat, even in smooth water, to reeve halliards or for any other purpose, but unstep and lower the mast in preference. Many boats have been upset, and very many lives lost, from this cause. The smaller a boat, the more necessary this and the foregoing precaution.

3. All spare gear, such as masts, sails, oars, &c., which are stowed above the thwarts, should be lashed close to the sides of a boat ; and any heavy articles on the boat's floor be secured as well as possible amidships, to prevent them all falling to leeward together on a heavy lurch of the sea.

4. On a merchant vessel getting stranded or otherwise disabled in a heavy sea, or on an open coast where there is a high surf on the beach, the crew should remain by their vessel as long as they can safely do so, in preference to taking to their boats. As a general rule, much more risk is incurred in a boat than in a ship, so long as the latter will hold together. Indeed in a moderate wind on a lee shore in open situations, and even in a calm, there is frequently more surf than any ordinary ship's boat can with safety attempt, however well managed she may be.

5. After being compelled to desert a ship in an ordinary ship's boat, too great precaution cannot be taken before attempting to land. Viewed from to seaward, a surf has never so formidable an appearance as when seen from the land ; persons in a boat outside the broken water are therefore apt to be deceived by it. They should, accordingly, if practicable, proceed along the land outside the surf, until abreast of a Coastguard or Life-boat Station, or fishing village, whence they might be seen by those on shore, who would then signalise to them where they might safest attempt to land, or warn them to keep off ; or who might proceed in a Life-boat or fishing-boat to their aid, the generality of coast fishing-boats being far better able to cope

with a surf than a ship's boat, and the coast boatmen being more skilful in managing boats in a surf than the crews of ships. If in the night, double precaution is necessary—and it will in general be much safer to anchor a boat outside the surf until daylight, than to attempt to land through it in the dark. For this reason an anchor and cable should always be put into a boat before leaving the ship, and also two or three buckets, in addition to the baler or hand-pump which should always be kept in her, so that she might be quickly relieved of any water she might ship.

6. Boats may ride out a heavy gale in the open sea, in safety, if not in comfort, by lashing their spars, oars, &c., together, and riding to leeward of them, secured to them by a span. The raft thus formed will break the sea : it may either be anchored or drifting, according to circumstances.

If the boat has a sail, the yard should be attached to the spars with the sail loosed. It will break much sea ahead. Also a weight suspended to the clue of the sail will impede drift when requisite. In all cases of riding by spars, a sufficient number of oars should be retained in the boat, to be ready for use in case of parting from the spars.

7. Where a surf breaks at only a short distance from the beach, a boat may be veered and backed through it from another boat anchored outside the surf, when two or more boats are in company : or she may be anchored and veered, or backed in from her own anchor.

8. Ships' boats should, in addition to their oars, masts, and sails, have the following articles placed in them, if possible, before deserting a ship at sea :—

A baler or hand-pump, and buckets ; the plug, and a spare one, both fastened by lanyards ; spare thole-pins and grummetts, if rowed in that manner ; two or three spare oars ; a small hatchet ; an anchor and cable ; a long small line, as a whale-line or deep-sea lead-line, and any life-buoys or life-belts which are on board. If in the night or at a distance from the land, a lantern and matches, and if available, blue lights or hand rockets. If beyond sight of land, a compass and telescope, and of course fresh water and provisions. A log-line and sand-glass, a hand-lead and line, small arms and ammunition (with ball-cartridges and small shot). A red flag and a boat-hook for a flagstaff might often be useful to attract attention. A red flannel shirt is a good substitute for a flag.

9. In addition to the above, small empty casks or breakers, tightly bunged and lashed along the sides beneath the thwarts, would partially convert any boat into a Life-boat, by making it impossible for her to founder and by increasing her stability ; whilst by leaving less space to be occupied by water if filled by a sea, their use would much expedite the process of pumping or baling out.

10. No ship's boat should either be lowered into or hoisted from the water, without first having a rope from the fore-part of the ship made fast to her bows, by which means she will be much steadier, and will be prevented going adrift if the tackles should be prematurely unhooked or carried away. The rudder should be slung to prevent its being lost if accidentally unshipped.

THE SAFETY FISHING-BOAT OF THE INSTITUTION.

THE accompanying figures show the general form, the nature of the fittings, air-compartments, shifting-coamings, and hatches of one of the safety boats, 40 ft. in length and 14 ft. in breadth.

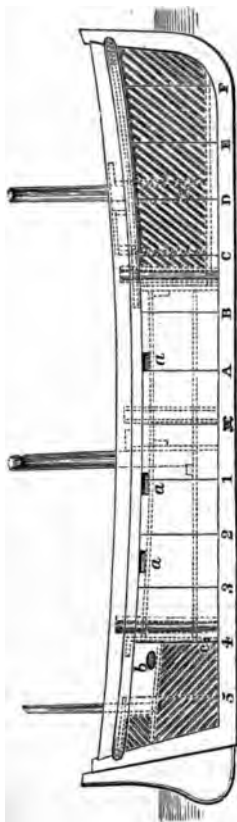


FIG. 1.—SHEER PLAN.

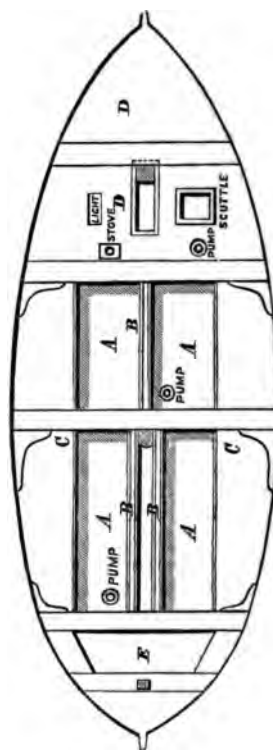


FIG. 2.—DECK PLAN.

In figs. 1 and 2, the elevation and deck-plans, and the general exterior form of the boat are shown, with the sheer of gunwale, length of keel, and rake of stem and stern-post.

The dotted lines of fig. 1 show the position of the compartments, bulk-heads, masts, pumps, thwarts, and shifting flat or deck. *a*, Scuttle in boat's side above the side decks. *b*, Scupper in the boat's side above the stern deck. *c*, Screw plug, to drain the stern compartment.

In fig. 2, *A* represents the open hatchways of the main-hold, to be covered with portable hatches and a water-tight tarpaulin cover in gales of wind; *B*, shifting coamings for the hatchways; *C*, the side-deck; *D*, the forecastle-deck; and *E*, the stern-deck.

Fig. 3 represents a section at the after air-compartment, showing the thwart and crutch to receive the mast, and the stern-deck.

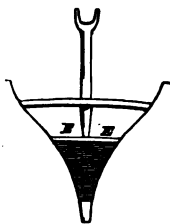


FIG. 3.—SECTION AT 5.

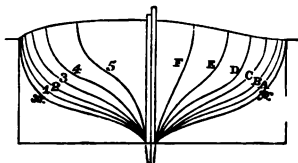


FIG. 4.—BODY PLAN.

In fig. 4, the exterior form of transverse sections, at different distances from stem to stern, is shown.

Fig. 5 represents a section at the fore air-compartment, showing the thwart and mast.

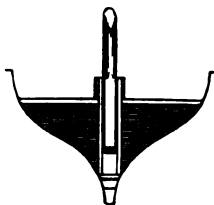


FIG. 5.—SECTION AT D.

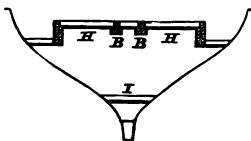


FIG. 6.—SECTION AT 3.

In fig. 6, the shifting coamings over the main-hold are shown, with the portable hatches (H) in place, and (I) the shifting deck or flat.

Fig. 7 represents a midship transverse section, F the thwart, C the side-deck, B the shifting coaming over the fore-hold, I the shifting deck or flat, and H the hatches in place.

Fig. 8 represents a section abaft the foremost bulkhead, showing the

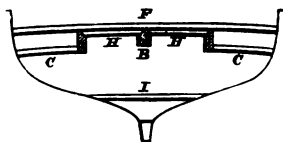


FIG. 7.—SECTION AT M.

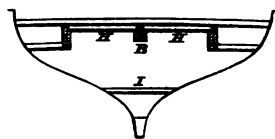
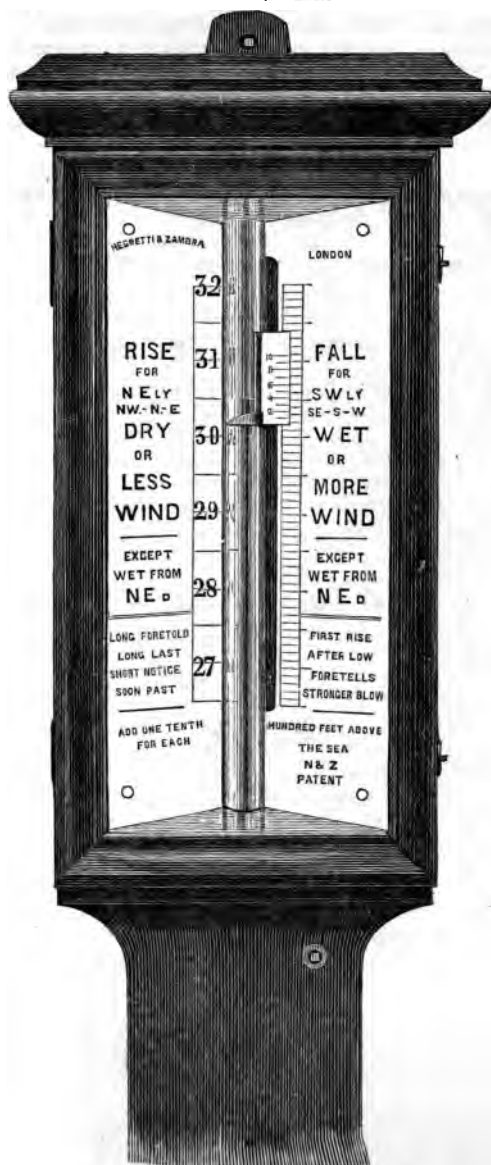


FIG. 8.—SECTION AT B.

shifting coaming (B) and portable hatches (H) in place ; and (I) the shifting deck or flat.



**BAROMETER INSTRUCTIONS COMPILED BY THE LATE ADMIRAL
FITZ-ROY, F.R.S.**



THE barometer should be set regularly by a duly-authorized person, about sunrise, noon, and sunset.

The words on scales of barometers should not be so much regarded for weather indications as the *rising* or *falling* of the mercury ; for if it stand at *changeable* (29'50), and then rise towards *fair* (30'00), it presages a change of wind or weather, though not so great as if the mercury had risen higher ; and, on the contrary, if the mercury stand above *fair* and then fall, it presages a change, though not to so great a degree as if it had stood lower : beside which, the direction and force of wind are not in any way noticed.

It is not from the point at which the mercury may stand that we are alone to form a judgment of the state of the weather, but from its *rising* or *falling* ; and from the movements of immediately *preceding* days as well as hours, keeping in mind effects of change of *direction*, and dryness, or moisture, as well as alteration of force or strength of wind.

It should always be remembered that the state of the air *foretells coming* weather, rather than shows the weather that is *present*—(an invaluable fact too often overlooked)—that the longer the time between the signs and the change foretold by them, the longer such altered weather will last ; and, on the contrary, the less the time between a warning and a change, the shorter will be the continuance of such foretold weather.

If the barometer has been about its ordinary height, say near thirty inches at the sea-level, and is steady on rising, while the thermometer falls, and dampness becomes less,—north-westerly, northerly, or north-easterly wind, or less wind, less rain or snow may be expected.

On the contrary, if a fall takes place with a rising thermometer and increased dampness, wind and rain may be expected from the south-eastward, southward, or south-westward.

A fall with low thermometer foretells snow.

When the barometer is rather below its ordinary height, say down to near twenty-nine inches and a-half (at sea-level), a rise foretells less wind, or a change in its direction towards the northward—or less wet ; but when it has been very low, about twenty-nine inches, the first rising usually precedes or indicates strong wind—at times heavy squalls—from the north-westward, northward, or north-eastward ; *after* which violence a gradually rising glass foretells improving weather, if the thermometer falls ; but if the warmth continue, probably the wind will back (shift against the sun's course), and more southerly or south-westerly wind will follow, especially if the barometer rise is sudden.

The most dangerous shifts of wind, or the *heaviest* northerly gales, happen *soon* after the barometer *first* rises from a very low point ; or, if the wind veers *gradually*, at some time afterwards.

Indications of approaching change of weather, and the direction and force of winds, are shown less by the height of the barometer than by its falling or rising. Nevertheless, a height of more than thirty (30'0) inches (at the level of the sea) is indicative of fine weather and *moderate* winds, except from east to north *occasionally*.

A rapid rise of the barometer indicates unsettled weather ; a slow movement the contrary ; as, likewise, a *steady* barometer, which, when continued, and with dryness, foretells very fine weather.

A rapid and considerable fall is a sign of stormy weather, and rain or snow. Alternate rising and sinking indicates unsettled and threatening weather.

The greatest depressions of the barometer are with gales from S.E., S., or S.W. ; the greatest elevations, with wind from N.W., N., or N.E., or with calm.

A sudden fall of the barometer, with a westerly wind, is sometimes followed by a violent storm from N.W., or N., or N.E.

If a gale sets in from the E., or S.E., and the wind veers by the South, the barometer will continue falling until the wind is near a marked change, when a lull *may* occur ; after which the gale will soon be renewed, perhaps suddenly and violently, and the veering of the wind towards the N.W., N., or N.E., will be indicated by a rising of the barometer, with a fall of the thermometer.

After very warm and calm weather a storm or squall, with rain, may follow ; likewise at any time when the atmosphere is *heated* much above the *usual* temperature of the season.

To know the state of the air not only the barometer *and* thermometer, but appearances of the sky should be vigilantly watched.

SIGNS OF WEATHER.

Whether clear or cloudy, a rosy sky at sunset presages fine weather ; a red sky in the morning, bad weather, or much wind, perhaps rain ; a grey sky in the morning, fine weather ; a high dawn, wind ; a low dawn, fair weather.*

Soft-looking or delicate clouds foretell fine weather, with moderate or light breezes ; hard-edged, oily-looking clouds, wind. A dark, gloomy, blue sky is windy ; but a light, bright-blue sky indicates fine weather. Generally, the *softer* the clouds look, the less wind (but perhaps more rain) may be expected ; and the harder, more "greasy," rolled, tufted, or ragged, the stronger the coming wind will prove. Also, a bright yellow sky at sunset presages wind ; a pale yellow wet ; and thus, by the prevalence of red, yellow, or grey tints, the coming weather may be foretold very nearly—indeed, if aided by instruments, almost exactly.

Small inky-looking clouds foretell rain ; light scud clouds driving across heavy masses show wind and rain ; but if alone, may indicate wind only.

High upper clouds crossing the sun, moon, or stars in a direction different from that of the lower clouds, or the wind then felt below, foretell a change of wind.

After fine, clear weather, the first signs in the sky of a coming change are

* A high dawn is when the first indications of daylight are seen above a bank of clouds. A low dawn is when the day breaks on or near the horizon, the first streaks of light being very low down.

usually light streaks, curls, wisps, or mottled patches of white distant clouds, which increase, and are followed by an overcasting of murky vapour that grows into cloudiness. This appearance, more or less oily, or watery, as wind or rain will prevail, is an infallible sign.

Light, delicate, quiet tints or colours, with soft, undefined forms of clouds, indicate and accompany fine weather; but gaudy or unusual hues, with hard, definitely-outlined clouds, foretell rain, and probably strong wind.

When sea-birds fly out early and far to seaward, moderate wind and fair weather may be expected. When they hang about the land, or over it, sometimes flying inland, expect a strong wind, with stormy weather. As many creatures besides birds are affected by the approach of rain or wind, such indications should not be slighted by an observer who wishes to foresee weather.

Remarkable clearness of atmosphere near the horizon, distant objects, such as hills, unusually visible, or raised (by refraction),* and what is called "a good *hearing* day," may be mentioned among signs of wet, if not wind, to be expected.

More than usual twinkling of the stars, indistinctness or apparent multiplication of the moon's horns, haloes, "wind-dogs" (fragments or pieces of rainbows, sometimes called "wind-galls"), seen on detached clouds, and the rainbow, are more or less significant of increasing wind, if not approaching rain, with or without wind.

Lastly, the dryness or dampness of the air, and its temperature (for the season) should *always* be considered, *with other* indications of change, or continuance of wind and weather.

On Barometer scales, the following contractions may be useful :—

RISE	FALL
FOR	FOR
N.E.LY	S.W.LY
(NW.-N.-E.)	(SE.-S.-W.)
DRY	WET
OR	OR
LESS	MORE
WIND.	WIND.
—	—
EXCEPT	EXCEPT
WET FROM	WET FROM
N.E.D.	N.E.D.

When the wind shifts against the sun,
Trust it not, for back it will run.,

First rise after very low,
Indicates a stronger blow.

Long foretold—long last.
Short notice—soon past.

* Much refraction is a sign of easterly wind.

INSTRUCTIONS FOR THE CARE, FIXING, AND MANAGEMENT OF COAST BAROMETERS, AND EXPLANATION OF THE BAROMETER CHART.

By JAMES GLAISHER, Esq., F.R.S., ROYAL OBSERVATORY, GREENWICH.

PRECAUTIONS BEFORE USING THE BAROMETER.

BEFORE the barometer is fixed it should be examined, in order to ascertain whether the space above the mercury is free from air. This is done by inclining the instrument quickly from the vertical position, so that the mercury strikes against the upper part of the tube, which, if the space above the mercury be free from air, elicits a sharp tap ; but if air be present, either a dull sound is heard or no sound at all, proving the presence of air, which must be expelled by inverting the instrument and tapping it gently with the hand throughout its entire length.

Before inclining the barometer, it is necessary to withdraw the screw a little at the bottom of the instrument when held vertically in the hand, by applying the adjusting key to the projecting square pin* at the bottom, so that the mercury falls half an inch or one inch in the tube, and after examination, to drive the screw again gently so that the mercury again fills the tube.

TO FIX THE BAROMETER.

In fixing the barometer, care should be taken to select a good light, and, if possible, opposite to some north point. The back of the instrument should be fixed to a piece of wood terminating beyond it, both above and below, in pivots to work in corresponding sockets, unless the instrument itself be already pivoted, so that it can revolve, and be turned inwards for adjusting and reading, and outwards for exterior view at pleasure, keeping it perpendicular in all positions.

When the barometer is fixed, apply the key as before directed to the square head or projecting pin at the bottom, and turn it as far as possible, keeping the eye fixed on the top of the mercurial column in its downward course. The mercury in the tube will soon adjust itself to its proper level on removing the key, which should be at once placed in its usual position to adjust the vernier.

TO REMOVE THE INSTRUMENT WHEN FIXED TO ANOTHER POSITION.

If it should be necessary to remove the barometer, first by means of the adjusting screw, drive the mercury to the top of the tube, turning it gently when it is approaching the top, and cease directly any resistance is experienced ; next, remove the upper bracket or socket ; lift the instrument and invert it, carrying it with its lower end upwards.

* This pin is in some instruments covered by a protecting cap, which must then be first removed.

THE SCALES OF BAROMETERS AND THEIR VERNIERS.

The scale of the barometer is divided into inches, and each inch is divided into ten parts; therefore each small division on the barometer scale is one-tenth of an inch.

A small scale, called a vernier, movable up and down along the edge of the barometer scale, by means of an adjusting key, is so made as to divide one of the small divisions of the barometer scale into as many parts as the vernier scale itself is divided into.

The vernier is divided into ten parts, numbered 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and enables the reading of the barometer, or height of the mercurial column, to be taken to one-hundredth of an inch. In some barometers the alternate divisions on the vernier only are numbered—thus, 2, 4, 6, 8, 10; the zero and the odd or intermediate numbers being very readily inferred.

TO READ THE BAROMETER.

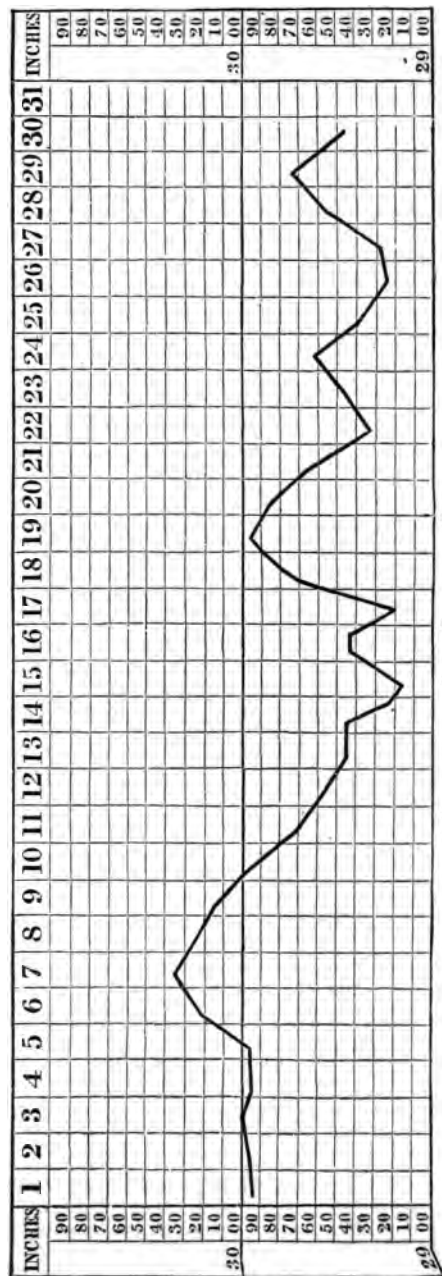
To read the barometer, first adjust the eye, by means of the fore and back part of the lower termination of the vernier, at an exact level, and while so placed, bring the lower part of the vernier to the apex or highest part of the mercurial column. Next look to the zero of the vernier, and see where it is placed with respect to the barometer scale. Suppose the zero line (the line next below that numbered 1 on the vernier) and the line 29.0 on the barometer scale to be in the same straight line, then the reading would be 29.00 in.; and in like manner, if the zero line be coincident with the barometer scale,

At 29.1	the reading would be	29.10
At 29.2	„	29.20
At 29.3	„	29.30

In the same manner all readings are to be taken when the vernier zero and a line on the barometer scale appear to be in the same straight line.

Now, suppose the zero line of the vernier not to be coincident with any line on the barometer, but to be situated between two of them, which will generally be the case, then some other line on the vernier will coincide with one on the barometer scale.

Suppose the zero of the vernier be between 29.50 and 29.60 on the barometer scale, this shows the reading is greater than 29.50, but not so large as 29.60; on looking up the vernier, suppose the line numbered 3 be found to be coincident with one on the barometer scale, this shows that 29.50 is to be increased by three-hundredths, and the reading would be 29.53 in. In like manner all readings would be taken when the vernier zero is situated between two lines on the barometer scale, namely, by increasing that reading of the barometer scale which is next below the zero of the vernier by that number on the vernier a continuation of whose line appears to pass through one of those on the barometer scale.



A SPECIMEN OF A DAILY BAROMETER CHART.

TIMES OF READING THE BAROMETER AND LAYING THE POINTS ON
THE DIAGRAM OR CHART.

The barometer should be set regularly by an authorized person twice each day, say at nine o'clock in the morning and three o'clock in the afternoon.

On taking the reading every morning, a dot should be placed on a ruled scale, corresponding to the reading, and a line drawn from the last dot to the new one, and thus successively day by day from one point to the next, indicating to the eye the changes of the preceding days, as shown in the preceding diagram.

The diagram or chart annexed is for a November month. An inspection will show that, till the 5th day, the deviations from a horizontal line are very small; then there is an ascending line to the 7th, when the highest point in the month is reached; from this time till the 12th the barometer reading was constantly decreasing; on the 13th day there was scarcely any change; on the 14th, two points are laid down, as the reading decreased from 29.46 in., in the morning, to 29.28 in. in the evening; on the 15th, the lowest reading in the month took place; on the 16th, the reading was steady all day; it then decreased during the night to 29.20 in.; on the following morning, there was a rise of half an inch between the 17th and 18th; and the increase continued till the 19th; there was then a decrease to the 21st; and alternately an increase and decrease about the point 29.50 in., till the end of the month.

These charts should be publicly exposed side by side with the barometer, and thus remain till the seventh day of the following month. Any one looking at them would then at once see what the barometer readings had been, and the tendency of future weather.

If there were found but small deviations from a horizontal line, and the barometer reading still nearly the same, a fisherman would know that no change was probable, and would go out to fish without hesitation. If, on the other hand, he found the diagram exhibiting an ascending or descending line, he would know that there had been a progressive rise or fall, and comparing this with the then state, and with his local knowledge of the coast, he would be enabled to judge with much confidence whether fair or foul weather was to be expected, and consequently whether it would be prudent for him to go out or remain on shore.

Now, if day by day such curves be laid down, and be watched in connection with the foregoing directions and the Barometer Instructions, they will

certainly tend to save many lives, and to preserve much valuable property from destruction.

A fisherman examining the state of the barometer need not notice the vernier at all ; but may pass his eye at once from the top of the mercurial column to the barometer scale ; or he may limit his observation to noticing whether there be a space between the mercury and the lower part of the vernier, or the projecting piece across the tube ; if there be, it will show that the barometer reading has fallen since the regular observation : and if there be not, it will show that it has either continued stationary, or that it is rising ; by which indications, in conjunction with the chart, he will accordingly be guided.

The habitual use of any instrument in the ordinary purposes of life too often engenders a neglect of the principles on which it acts, and among such instruments is the barometer, an instrument whose action depends on principles as beautiful as any in the whole range of natural science. I will therefore say a few words upon the principles of constructing a barometer, in addition to what has been already explained as to the use of the vernier, and how to read it in connection with the barometer scale.

The first step in such an inquiry must be connected with the atmosphere by which we are surrounded, and the variations of which, in weight, the barometer is designed to measure.

The atmosphere is an invisible elastic fluid, possessing, among other qualities, that of weight. To most persons it is a matter of wonder that air possesses weight. Yet if we reflect that clouds, which are composed of water, and therefore possess weight, are upheld by the air beneath, and which, therefore, must be mass for mass heavier than the clouds, we cannot fail to perceive that the air must possess weight. Again, we know a balloon with its car and heavy appendages ascends in air ; the only reason for this must be, that the bulk of atmospheric air is heavier than an equal bulk of gas which is contained in the balloon, in addition to the weight of the balloon itself and its appurtenances. It is not easy to weigh air, yet it has been done ; and the weight of 100 cubic inches of air, when the barometer reads 30 inches and the thermometer stands at 60 degrees, is found to be about 31 grains.

This is about one eight hundred and fifteenth the weight of the same bulk of water, and therefore air is about eight hundred and fifteen times lighter than water. Air thus possessing weight, it follows that that portion nearest to the surface of the earth is pressed by all that which is above.

If we take a glass tube nearly 3 feet in length, closed at one end, filled quite full of mercury, and then place the open end into a basin of mercury, preventing the admission of air into the tube, by covering the open end

with the finger till it is covered by the mercury in the basin, then on removing the finger and placing the tube vertically, the mercury in the tube will sink to the height of about 30 inches above that in the basin. Now the mercury in the basin within the tube is pressed by a column of mercury 30 inches high, and on every other part outside the tube by the atmosphere above it, and these two balance each other. The weight of the column of mercury in the tube can be weighed, and it will be found that if a column of mercury one inch square and 30 inches high be weighed, it will be about $14\frac{1}{2}$ lbs., and therefore a column of air one inch square, and reaching from the earth to the top of the atmosphere, will weigh about $14\frac{1}{2}$ lbs.

As the mercury in the tube exactly balances the pressure of the atmosphere, this height will vary in proportion to its variations in pressure, and the height of the mercurial column in this climate is found to vary from less than 28 inches to 31 inches at the sea-level.

The essential part of every barometer is a glass tube filled with mercury; all the other parts of a barometer are conveniences to determine accurately the height of the column of mercury in the tube above the surface of the mercury in the basin or cistern. In filling the tube much care and many precautions are necessary, and the mercury must be boiled in the tube itself throughout its whole length.

In all the coast barometers supplied to the NATIONAL LIFE-BOAT INSTITUTION, the whole of the above-stated precautions are taken. They are all carefully examined by myself, and are not passed for use till these readings agree with those of the standard at the Royal Observatory, Greenwich, which instrument reads in accordance with the flint-glass barometer of the ROYAL SOCIETY.



DIRECTIONS FOR RESTORING THE APPARENTLY DROWNED.

THE leading principles of the following directions for the restoration of the apparently dead from drowning, are founded on those of the late DR. MARSHALL HALL, combined with those of DR. H. R. SILVESTER, and are the result of extensive inquiries which were made by the ROYAL NATIONAL LIFE-BOAT INSTITUTION in 1863-4, amongst medical men, medical bodies, and coroners throughout the United Kingdom. These directions have been extensively circulated by the Institution throughout the United Kingdom and in the Colonies. They are also in use in Her Majesty's fleet, in the Coastguard service, and at all the stations of the British army at home and abroad.

I.

Send immediately for medical assistance, blankets, and dry clothing, but proceed to treat the patient *instantly* on the spot, in the open air, with the face downward, whether on shore or afloat; exposing the face, neck, and chest to the wind, except in severe weather, and removing all tight clothing from the neck and chest, especially the braces.

The points to be aimed at are—first and *immediately*, the RESTORATION OF BREATHING; and secondly, after breathing is restored, the PROMOTION OF WARMTH AND CIRCULATION.

The efforts to *restore Breathing* must be commenced immediately and energetically, and persevered in for one or two hours, or until a medical man has pronounced that life is extinct. Efforts to promote *Warmth* and *Circulation*, beyond removing the wet clothes and drying the skin, must not be made until the first appearance of natural breathing; for if circulation of the blood be induced before breathing has recommenced, the restoration to life will be endangered.

II.—TO RESTORE BREATHING.

To Clear the Throat.—Place the patient on the floor or ground with the face downwards, and one of the arms under the forehead, in which position all fluids will more readily escape by the mouth, and the tongue itself will fall forward, leaving the entrance into the windpipe free. Assist this operation by wiping and cleansing the mouth.

If satisfactory breathing commences, use the treatment described below to promote Warmth. If there be only slight breathing—or no breathing—or if the breathing fail, then—

To Excite Breathing.—Turn the patient well and instantly on the side, supporting the head, and excite the nostrils with snuff, hartshorn, and smelling salts, or tickle the throat with a feather, &c., if they are at hand. Rub the chest and face warm, and dash cold water, or cold and hot water

alternately, on them. If there be no success, lose not a moment, but instantly—

I.—INSPIRATION.



To Imitate Breathing—Replace the patient on the face, raising and supporting the chest well on a folded coat or other article of dress.

Turn the body very gently on the side, and a little beyond, and then briskly on the face, back again, repeating these measures cautiously, efficiently, and perseveringly, about fifteen times in the minute, or once every four or five seconds, occasionally varying the side.

[By placing the patient on the chest, the weight of the body forces the air out : when turned on the side, this pressure is removed, and air enters the chest.]

2.—EXPIRATION.



The foregoing two Illustrations show the Position of the Body during the employment of Dr. Marshall Hall's Method of Inducing Respiration.

On each occasion that the body is replaced on the face, make uniform but efficient pressure with brisk movement, on the back between and below the shoulder-blades or bones on each side, removing the pressure immediately before turning the body on the side.

During the whole of the operations let one person attend solely to the movements of the head and of the arm placed under it.

[The first measure increases the Expiration—the second commences Inspiration.]

*** The result is *Respiration* or *Natural Breathing*; and, if not too late, *Life*.

Whilst the above operations are being proceeded with, dry the hands and feet, and as soon as dry clothing or blankets can be procured, strip the body, and cover or gradually reclothe it, but taking care not to interfere with the efforts to restore breathing.

III.

Should these efforts not prove successful in the course of from two to five minutes, proceed to imitate breathing by Dr. SILVESTER'S method, as follows :

Place the patient on the back on a flat surface, inclined a little upwards from the feet ; raise and support the head and shoulders on a small firm cushion or folded article of dress placed under the shoulder-blades.

I.—INSPIRATION.



Draw forward the patient's tongue, and keep it projecting beyond the lips : an elastic band over the tongue and under the chin will answer this

purpose, or a piece of string or tape may be tied round them, or by raising the lower jaw, the teeth may be made to retain the tongue in that position. Remove all tight clothing from about the neck and chest, especially the braces.

To Imitate the Movements of Breathing.—Standing at the patient's head, grasp the arms, just above the elbows, and draw the arms gently and steadily upwards above the head, and *keep them stretched* upwards for two seconds. (*By this means air is drawn into the lungs.*) Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest. (*By this means air is pressed out of the lungs.*)

Repeat these measures alternately, deliberately, and perseveringly, about fifteen times in a minute, until a spontaneous effort to respire is perceived, immediately upon which cease to imitate the movements of breathing, and proceed to INDUCE CIRCULATION AND WARMTH.

2.—EXPIRATION.



The foregoing two Illustrations show the position of the Body during the employment of Dr. Silvester's Method of inducing Respiration.

IV.—TREATMENT AFTER NATURAL BREATHING HAS BEEN RESTORED.

To Promote Warmth and Circulation.—Commence rubbing the limbs upwards, with firm grasping pressure and energy, using handkerchiefs, flannels, &c. [*By this measure the blood is propelled along the veins towards the heart.*]

The friction must be continued under the blanket or over the dry clothing.

Promote the warmth of the body by the application of hot flannels, bottles, or bladders of hot water, heated bricks, &c., to the pit of the stomach, the arm-pits, between the thighs, and to the soles of the feet,

If the patient has been carried to a house after respiration has been restored, be careful to let the air play freely about the room.

On the restoration of life, a teaspoonful of warm water should be given ; and then, if the power of swallowing have returned, small quantities of wine, warm brandy-and-water, or coffee should be administered. The patient should be kept in bed, and a disposition to sleep encouraged.

GENERAL OBSERVATIONS.

The above treatment should be persevered in for some hours, as it is an erroneous opinion that persons are irrecoverable because life does not soon make its appearance, persons having been restored after persevering for many hours.

APPEARANCES WHICH GENERALLY ACCOMPANY DEATH.

Breathing and the heart's action cease entirely ; the eyelids are generally half closed ; the pupils dilated ; the tongue approaches to the under edges of the lips, and these, as well as the nostrils, are covered with a frothy mucus. Coldness and pallor of surface increase.

CAUTIONS.

Prevent unnecessary crowding of persons round the body, especially if in an apartment.

Avoid rough usage, and do not allow the body to remain on the back unless the tongue is secured.

Under no circumstances hold the body up by the feet.

On no account place the body in a warm bath unless under medical direction, and even then it should only be employed as a momentary excitant.

** * Large placards of these Instructions, with Illustrations printed thereon, can be supplied by Messrs. CLOWES & SONS, Printers, Charing Cross, London, at a cost little beyond the actual price of the paper on which they are printed, namely Six Shillings per 100 Copies.*



LIFE-SAVING HAMMOCKS AND MATTRESSES.

ADMIRAL RYDER has persistently urged on the Admiralty the great advantage that would accrue if the hammocks in ships of war were made to serve as life-buoys, in the event of a ship suddenly foundering ; more especially as in future naval wars it is probable that such catastrophes will be of much more frequent occurrence than formerly, consequent on the general introduction of torpedoes and steam-rams.

By the adoption of a cork mattress, a naval hammock can be readily and quickly converted into an efficient life-buoy which will support one man buoyantly, with his breast and shoulders well above the water's surface, without depriving him of the power of locomotion ; whilst it would support three men in an upright position, with their heads and faces above water.

As such mattresses can also be made much more cheaply than those stuffed with hair, and are as comfortable to sleep on, it would seem that there need be no impediment to their general use in the Royal Navy.

The most effectual mode of using such beds as life-buoys would be to bend the hammock as lashed up and stowed in the netting, bringing the two ends together and securing them by the ordinary laniards, by which the hammocks are hung up when slept in, thus forming a large life-buoy, shaped somewhat like a horse-collar, leaving the ends about eighteen inches apart, when the form will be that of a horse-shoe, as shown in fig. 1.



FIG. 1.—HAMMOCK FOLDED READY FOR USE AS A LIFE-PRESERVER.

On a catastrophe occurring, each man would then take a hammock from the netting where they were stowed, and bending it *backwards*, so as to tighten the lashing, would secure the ends by the clews and laniards, and jumping overboard with it under his arms, he would be able to swim with it clear of the ship, and to support himself on it until help should arrive.

The sketch (fig. 2) shows the manner in which a man would support and propel himself with the aid of the hammock-buoy :—

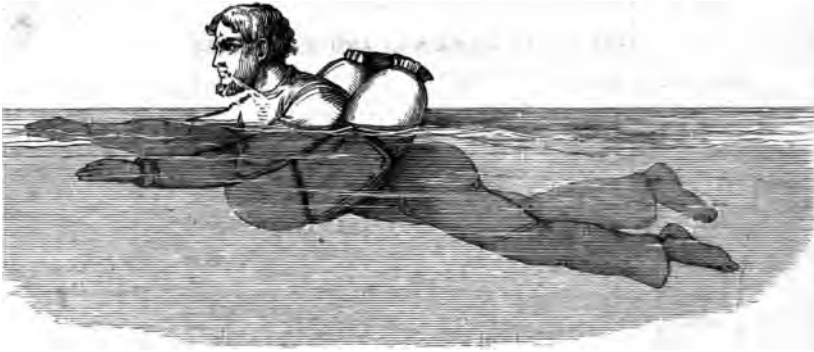


FIG. 2.—MAN SWIMMING WITH HAMMOCK.

Another mode in which the hammocks might be used advantageously, and which has also been proved by experiment, is by lashing two hammocks together at the ends, about twenty inches apart, so that two, or even three persons, placing themselves between them, with one arm over each hammock, and facing the same end, could strike out with their legs as in swimming, and thus propel themselves through the water, as shown in the sketch, fig. 3 :—

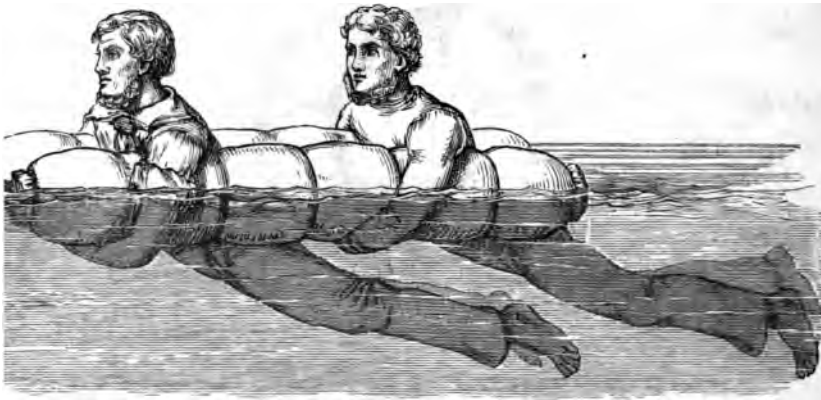


FIG. 3.—TWO MEN SWIMMING BETWEEN TWO HAMMOCKS.

This mode of using the hammocks might, under some circumstances, be of great advantage, as two men might in this manner proceed several miles through the water in a few hours, and might even convey intelligence of a catastrophe to the nearest port or to a distant vessel, where assistance might be obtained.

It is not, however, contemplated to confine the use of cork mattresses to the Royal Navy, for they might undoubtedly be made instrumental to the saving of many lives in merchant vessels where those on board are unprovided with life-belts. Since, however, merchant seamen are not usually provided with hammocks, but sleep in berths, or bed-places, a different arrangement has necessarily to be adopted. Messrs. BIRT have therefore designed and patented a special form of mattress, which can be so secured round the body, close under the arms, as to form a life-belt.

To effect this the mattress is divided, longitudinally, into two distinct parts, but united by the linen covering on one side, so that the two parts will fold back, as on a hinge, and thus be doubled and reduced to half the original width.

The sketches (figs. 4 to 9) will give a correct idea of their character, and of the manner in which they would be worn :—



FIG. 4.—CORK MATTRESS.

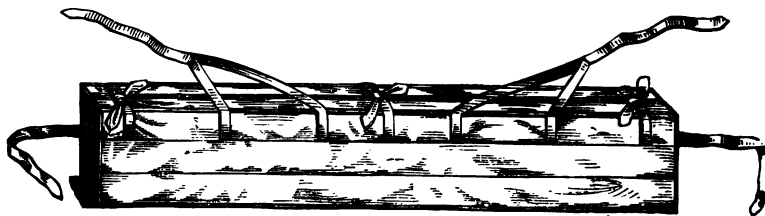


FIG. 5.—MATTRESS FOLDED READY FOR USE AS A LIFE-PRESERVER.

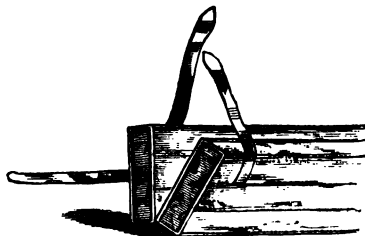
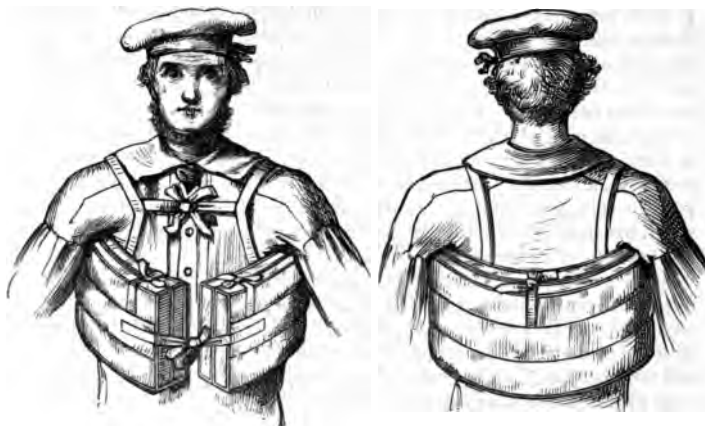


FIG. 6.—SECTION OF MATTRESS—END VIEW.



FIGS. 7 AND 8.—VIEW OF MATTRESS WHEN ON—FRONT AND BACK.



FIG. 9.—MAN SWIMMING WITH MATTRESS.

Cushions for the deck and cabin seats in passenger-vessels, yachts, and pleasure-boats of all kinds, are also made in the same manner, each cushion being of the width of one fold of a mattress.

These mattresses and cushions have only to be seen to convince any one of their fitness for the purpose for which they are intended; and their general adoption for the purposes above indicated cannot fail to lead to the saving of a large number of lives,

In proof of their ample buoyancy, it may be stated that the buoyancy of a single hammock mattress (fig. 1) is equivalent to sixty pounds, as it will float an iron weight of that amount ; that of the larger mattress (fig. 4) is about seventy-five pounds ; whilst the buoyancy of the best description of cork life-belts, or life-jackets, as provided to the crews of Life-boats, is only from twenty-three to twenty-seven pounds.

The cork with which they are filled is ground or granulated by machinery, and after the dust is removed the grains are of small size, which gives the mattresses a soft and elastic surface. Rib pieces are then inserted to prevent the cork from shifting. It also absorbs so little water that a mattress which has been immersed for twenty-four hours has at the end of that time lost but little of its buoyancy.

A great inducement to adopt these mattresses would also be found in the fact, that even the most expensive of them, namely, those costing 11s. 6d. each, cost less than half of what they would if made of horsehair. Those with the commonest description of covering can be had for 7s. 6d. each ; and their buoyancy, and therefore their practical utility as life-buoys, is the same as that of the more expensive kinds.



THE ALBERT MEDAL.**VICTORIA R.**

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, &c.

To all to whom these presents shall come, greeting ;

Whereas We, taking into Our royal consideration that great loss of life is sustained by reason of Shipwrecks and other perils of the sea ; and taking also into consideration the many daring and heroic actions performed by mariners and others to prevent such loss, and to save the lives of those who are in danger of perishing by reason of wrecks and perils of the sea ; and taking also into consideration the expediency of distinguishing such efforts by some mark of Our royal favour ;

Now for the purpose of attaining an end so desirable as that of rewarding such actions as aforesaid, We have instituted and created, and by these presents for Us, our Heirs and Successors, institute and create, a new decoration, which We are desirous should be highly prized and eagerly sought after, and are graciously pleased to make, ordain, and establish the following rules and ordinances for the government of the same, which shall from henceforth be inviolably observed and kept.

First.—It is ordained, that the distinction shall be styled “THE ALBERT MEDAL,” and shall consist of a gold, oval-shaped badge or decoration enamelled in dark blue, with a monogram composed of the letters V. and A., interlaced with an anchor erect in gold, surrounded with a garter in bronze, inscribed in raised letters of gold “For Gallantry in Saving Life at Sea,” and surmounted by a representation of the Crown of His Royal Highness the lamented Prince Consort, and suspended from a dark blue ribbon of five-eighths of an inch in width, with two white longitudinal stripes.

Secondly.—It is ordained, that the medal shall be suspended from the left breast.

Thirdly.—It is ordained, that the names of those upon whom We may be pleased to confer the decoration shall be published in the ‘London Gazette,’ and a registry thereof kept in the Office of the Board of Trade.

Fourthly.—It is ordained, that any one who, after having received the medal, again performs an act which, if he had not received such medal, would have entitled him to it, such further act shall be recorded by a bar attached to the ribbon by which the medal is suspended; and for every such additional act an additional bar may be added.

Fifthly.—It is ordained, that the medal shall only be awarded to those who, after the date of this instrument, have, in saving or endeavouring to save the lives of others from Shipwreck or other peril of the sea, endangered their own lives, and that such award shall be made only on a recommendation to Us by the President of the Board of Trade.

Sixthly.—In order to make such additional provision as shall effectually preserve pure this most honourable distinction, it is ordained, that if any person on whom such distinction is conferred be guilty of any crime or disgraceful conduct which in Our judgment disqualifies him for the said decoration, his name shall forthwith be erased from the registry of individuals upon whom the said decoration shall have been conferred by an especial warrant under Our Royal Sign Manual, and his medal shall be forfeited. And every person to whom the said medal is given shall, before receiving the same, enter into an engagement to return the same if his name shall be so erased as aforesaid under this regulation. It is hereby further declared, that We, Our Heirs and Successors, shall be the sole judges of the circumstance demanding such expulsion. Moreover, We shall at all times have power to restore such persons as may at any time have been expelled to the enjoyment of the decoration.

Given at Our Court at St. James’s, this seventh day of March,
One thousand eight hundred and sixty-six, in the twenty-ninth year
of Our reign.

By Her Majesty’s Command.

(Signed) G. GREY.

The following is a complete LIST of the Recipients of the ALBERT MEDAL decoration for Saving Life, from its institution in 1866 to 1874, and distinguishing between its First and Second Class recipients :—

- | | |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 1. Mr. Samuel Popplestone,
Farmer,
Start Farm, Devon
1st Class. | 11. John Rickett,
A.B. of H.M.S. <i>Clio</i> .
2nd Class. |
| 2. Mr. Samuel Lake,
Bombay Reclamation Com-
pany's Works.
1st Class. | 12. Mr. Edward B. March,
H.M.'s Vice-Consul,
San Sebastian.
1st Class. |
| 3. Mr. W. H. Millett,
Third Officer of Peninsular and
Oriental Company's Steamer
<i>Emeu</i> .
1st Class. | 13. Lionel Audroz de Sausmarez, R.N.,
Sub-Lieutenant H.M.S. <i>Myr-
midon</i> .
2nd Class. |
| 4. Rev. Charles Cobb,
Rector of Dymchurch,
Kent.
1st Class. | 14. James Crowden,
Chief Officer Coast Guard
Station,
Muchals,
2nd Class. |
| 5. John Batist,
Boatman at the Dymchurch
Coast Guard Station.
2nd Class. | 15. James Beautine Willoughby,
Captain R.N.,
Principal Transport Officer in
Egypt.
2nd Class. |
| 6. John Donovan,
Chief Boatman in charge, Old
Head Coast Guard Station,
Kinsale.
2nd Class. | 16. William Simpson, R.N.,
Late Chief Boatman in charge
of the Coast Guard Station at
Bude,
Cornwall.
2nd Class. |
| 7. Charles Sprankling,
Chief Boatman Coast Guard
Station,
Burton.
2nd Class. | 17. Edward Giles,
Captain Indian Navy,
Master Attendant at Kurrachee.
2nd Class. |
| 8. James Hudson,
Apprentice on board the vessel
<i>Maid of Orleans</i> of Ardros-
san.
2nd Class. | 18. William Balfour Forbes,
Lieutenant R.N., of H.M.S. <i>Rapid</i> .
2nd Class. |
| 9. Theophilus Jones,
Falmouth.
2nd Class. | 19. Mr. Augustus R. Margary,
Assistant in H.M.'s Consular
Service in China.
1st Class. |
| 10. Mr. A. T. Shuttleworth,
Deputy Conservator of Forests,
Alibagh.
1st Class. | 20. Mr. John Dodd,
British Merchant residing at
Kelung, Formosa.
1st Class. |

**EXTRACTS FROM THE BOARD OF TRADE INSTRUCTIONS FOR
USING THE ROCKET AND MORTAR APPARATUS AT A WRECK.**

DUTIES OF INSPECTING OFFICER.

The Inspecting Officer of Coastguard is held responsible for the efficiency or otherwise of the Mortar and Rocket Apparatus in his Division.

The number of rockets for each apparatus is eighteen, and the number of rocket lines two or more, as circumstances may in the opinion of the Inspecting Officer require.

As much of the success in the use of the apparatus depends upon the promptness with which it is brought into action, and on the precision and efficiency of the first shot, the Inspecting Officer should make himself thoroughly acquainted with the use and application of all its parts, and should take care that this is also understood by the Officers and men under his command.

DESCRIPTION OF THE APPARATUS.

The following parts of the apparatus for saving life from Shipwreck are required to be provided in addition to the projectiles and the means supplied for launching them ; namely,

- (a.) A suitable *cart or wagon* in which the apparatus can be carried to a wreck. This should be supplied with springs and good side lamps, and should be sufficiently large to contain the whole of the apparatus and gear. The wheels should be made with broad or narrow tires to suit the character of the coast on which it may be worked. Each cart or wagon should carry drag ropes and fittings, similar to those used with guns in field batteries, so that it can be dragged either by men or horses, as circumstances may require. A box to contain small stores, such as a hammer, nails, grease, spun yarn, &c., should be fitted to the side of the cart or wagon before the wheel. Carts or wagons should in all cases be provided with iron crutches on each side above the wheels, on which the rocket tube, staves, and triangle can be carried.
- (b.) Two or three *Rocket lines* laid up loose. One end of the rocket line is to be attached to, and launched with the shot or rocket.
- (c.) *Boxes* fitted with faking pins, in which to stow the rocket lines.
- (d.) A "*Hawser*" of 3-inch Manilla right-handed rope, from 40 to 120 fathoms, according to the steepness or flatness of the shore.
- (e.) A "*Whip*" of Manilla line, not exceeding $1\frac{1}{2}$ inch, rove through a single Tailed Block. The "*whip*" to be made of left-handed

rope the reverse of the hawser, and to be twice as long as the hawser, and the tail of the block to be at least 2 fathoms in length, and the sheave to be brass bushed. The ends of the "whip" to be spliced together, so as to convert it into an endless rope.

- (f.) A "*Sling Life Buoy*," with petticoat breeches, in which to place the person to be rescued, and haul him ashore.
- (g.) A "*Traveller*," or inverted block with a brass sheave, to be attached to the "*sling*," and carry it along the *hawser*.
- (h.) A "*Double Block Tackle Purchase*" for setting taut the hawser, one of the blocks being fitted with two tails to bend on to the hawser, or with luff tackles fitted to put on to the hawser with strop and toggle (like a top-gallant or royal purchase). The blocks to be brass bushed.
- (i.) Three small *spars* to form a triangle over which the hawser may be passed, and thereby raised higher above the water. This will be found convenient on parts of the coast where the shore is flat.
The triangle should be fitted with a swivel snatch block, brass bushed instead of standing hooks, the strapping of the block to be of good iron.
- (k.) An "*Anchor*" with one fluke, to be buried in the earth, sand, or shingle, to which to set up the hawser by means of the tackle purchase. Or in some places where the shore is composed of soft shingle or sand, and where an anchor will not hold, a stout plank or backer 5 or 6 feet long, with a fathom of chain of sufficient strength fastened round it amidships, may be substituted for the anchor. This plank being buried 3 or 4 feet beneath the ground, and the end of the chain, with a ring attached, led to the surface, the hawser may be set up to it, by the tackle purchase in the same manner as to an anchor.
- (l.) A "*Red Flag*" 2 feet by 3 feet, fixed at the end of a staff 5 feet long; and a "*Lanthorn*" with a *red* lens fixed in it; to be used as signals in the manner hereafter directed.
- (m.) Two or three *spades* or *shovels*, and a *pickaxe*, to be of good quality and suitable for the work, a *Salvagee strop*, and a few pieces of *extra rope*, to be used as occasion may require.
- (n.) A light *hand-barrow*, when thought necessary, for carrying portions of the apparatus from the cart to the place where it is to be used.
- (o.) Three sets of *Tally boards*, each set consisting of two boards of hard wood about 9 inches long by 5 inches wide and $\frac{3}{4}$ inch thick. These boards to have the following words painted on them in white letters on a black ground.—English on one side and French the other; viz.—

No. 1. Tally board to be attached to the whip.

English,—

"Make the tail of the block fast to the lower mast well up.
If masts are gone, then to the best place you can find. Cast off

rocket line, see that the rope in the block runs free, and show signal to the shore."

French,—

"Fouettez la poulie le plus haut possible sur le bas-mât, ou à l'endroit le plus favorable si les bas-mâts sont perdus. Détachez la ligne, voyez que la corde coure facilement dans la poulie, et faites signal au rivage."

No. 2. Tally board to be attached to the hawser.

English,—

"Make this hawser fast about 2 feet above the tail block. See all clear and that the rope in the block runs free, and show signal to the shore."

French,—

"Amarrez cette aussière à deux pieds environ au-dessus de la poulie. Voyez que rien n'engage et que la corde coure facilement dans la poulie, puis faites signal au rivage."

(p.) *Long light.* One box of Colonel BOXER'S to be used as occasion may require.

(q.) "*Signal Rockets.*" Eighteen, throwing white and red stars.

(r.) Two *heaving sticks* and lines, to be used as occasion may require.

(s.) A *water barrico* with a large square hinge bung large enough to admit a man's hand will be supplied if specially demanded.

(t.) A *tarpaulin* to cover over the apparatus and stores in the cart when the apparatus is not in use, and fitted with becketts and tent pegs, to secure it on the beach or shore for coiling the whip on when the apparatus is in use.

(u.) Three of Colonel MILLWARD'S Lights for illuminating at Wrecks.

(v.) Two of Captain WARD'S Life Belts, and two *Life Lines*.

(w.) A Rope Ladder 120 feet long (when necessary) for going over steep cliffs.

The whole of the gear and a sufficient supply of Rockets, &c., are to be kept in the Rocket Apparatus cart, IN GOOD ORDER, DRY, AND READY FOR IMMEDIATE USE.

USING THE APPARATUS AT A WRECK.

The Officer of Coastguard and Receiver of Wreck have power under sections 441 and 442 of the Merchant Shipping Act to compel the owners of horses and carts to lend them for use in cases of Shipwreck. But it is hoped that by making a proper arrangement, and coming to an understanding with one or two owners of horses on the spot, recourse to the power conferred by the Act will not be necessary.

The attention of Coastguard Officers is directed to the necessity of having arrangements made with the neighbouring farmers for the use of their horses or carts to convey the apparatus to the scene of a wreck, in order that no delay may occur when a wreck is reported.

The Inspecting Officer of the Coastguard, or the principal Officer of



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THE ROCKET-APPARATUS FOR SAVING LIFE FROM SHIPWRECK.

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the Customs or of the Coastguard who is present at a wreck, is to exercise the powers given him by the 441st to 447th sections of the Act, and is to take command of all persons assembled, and assign to each such work as he may consider necessary for establishing a communication with the wrecked ship, and hauling the people ashore speedily. Should any persons refuse to do the work allotted they are liable to a penalty of 50*l*. under the 441st section of the Act.

It is unnecessary to describe minutely the manner in which the rocket or mortar is to be arranged for firing, as a knowledge thereof, and of the manner of using the apparatus, can only be obtained by actual practice. It may, however, be observed that an angle of 45 degrees for the mortar, and 35 to 38 degrees for BOXER'S rocket, are the elevations which appear to give the greatest range. The first shot or rocket should always be fired with the rocket line in the box, and the box should be slightly tilted towards the wreck. But for subsequent shots the line may be faked on the beach, care being taken that no impediments are in the way of its running out rapidly when the rocket or shot is fired.

Great care should be taken in arranging the apparatus with precision for firing the first shot or rocket, as after the line becomes wetted and dirty the chances of effecting a communication are more remote.

The rocket line should be fastened to the rocket stick. The line should also have a knot made near the hole at the end of the rocket staff so that if the line is burnt near the rocket the knot will catch the stick.

When the line has been thrown over the ship and has been grappled by the crew a signal will be made in the following manner. If in the day-time one of the crew, for this purpose separated from the rest, will wave his hat or his hand, or a flag or handkerchief; or, if at night a rocket, a blue light, or a gun will be fired, or a light shown over the ship's gunwale for a short time and will then be concealed.

On this signal being seen on shore the inshore end of the shot or rocket line should be made fast to the whip, *by being bent round both parts of it* at about two fathoms from the tailed block, and a signal should then be made as follows, for those on the wreck to haul off the line:

One of the men on shore is to be separated from the rest, and in the day-time is to wave a small red flag, or at night is to show a red light for about a minute and then again conceal it.

The crew of the wreck on seeing this signal will haul on the shot or rocket line till they get the whip and tailed block, when they will make the tail of the block fast to the mast *as high up as circumstances will permit*, or to the HIGHEST secure part of the vessel, and will cast off the rocket line, and make the signal as before for those on shore to haul off the hawser.

As soon as this signal is perceived by those on shore the whip (being previously made fast to the hawser at two or three fathoms from its end) will be manned, and the hawser hauled off by it to the wreck, by those on shore.

As soon as the persons on the wreck get hold of the hawser, they will proceed to *make it fast to the wreck at about 18 inches ABOVE the*

place where the tail of the block is fixed ; and when they have secured it, and disconnected the hawser from the whip, they will signal as before to the people on shore.

On perceiving this signal, the hawser is to be set up by means of the double block tackle purchase ; and the breeches buoy (the block of which will have been adjusted on the hawser) is to have the whip secured to it by a clove hitch, and by means of the whip, is to be hauled off to the wreck by those stationed for the purpose on the shore ; who also, on the next signal being shown, implying that a person is secured in the sling, will haul him ashore, and repeat the same operation to and fro until all are landed. The parts of the whip line should be kept as far apart as possible.

Circumstances may require some deviation from the above rules. For instance, if the wrecked vessel be subjected to violent motion by the beat of the sea, it will be better not to set up the hawser at all, but to man it, with as many hands as can be spared, and reeve it over a triangle, if necessary, when by hauling and veering on it, following the motion of the vessel, a sufficiently uniform strain on it would be obtained without the risk of carrying it away.

Again, circumstances might arise, as they have sometimes done, when the immediate breaking up of the wreck might be imminent, and the delay in getting the hawser on board be of serious moment. In such a case the floating sling buoy should be hauled off by the whip alone, and the wrecked persons brought ashore in it floating in the water.

And again ; in cases where the wreck happens on a flat shore, the hawser need not be set up at all, but the whip made to answer for both hawser and whip. When this is the case the travelling block should be taken from the sling life buoy and one end of the whip should be run through the thimble attached to the life-buoy slings. The ends of the whip should then be made fast to the grummets on the sides of the life-buoy.

In all other cases the hawser should be set up when practicable.

The illustration will help to explain how the mortar and rocket apparatus is to be used.



MERCHANT SHIPPING ACTS AMENDMENT ACT, 1873.

(From the *Life-boat Journal* for February 1874.)

IN the year 1854 the great Merchant Shipping Act was passed, which was a substitute for all previous Acts, and which, with certain subsequent amendments, passed in 1855, 1856, 1862, and 1871, has since constituted the law for the regulation of our merchant shipping and merchant seamen. We, at that time, remarked on its several provisions, in a series of papers in our 14th, 15th, and 17th numbers, and pointed out what we considered some of its shortcomings and inconsistencies, but, at the same time, stated that, in our opinion, "it embodied a most comprehensive system of legislation for all the vast and varied interests involved in the immense shipping trade of this country;" and, having special reference to that part of the subject allied to the objects of this Institution, we observed that, "among the many enactments contained in it for the protection and welfare of seamen, and of passengers when on shipboard, there were several, the objects of which were, or the effect of which would be, to afford increased security to life in case of Shipwreck or other disaster at sea."

In 1869 a new Merchant Shipping Bill was prepared, to be termed the Merchant Shipping Act, 1870, but other and more urgent matter for legislation has, from then until now, occupied the attention of Parliament, and the Bill has not yet been considered by it.

Another Amendment Act was, however, passed by the Legislature in August, 1873. It may be considered, however, only an intermediate measure to meet some of the more pressing requirements of the Mercantile Marine until the comprehensive Bill of 1870 can be again brought forward.

The 1st and 2nd sections define the Act as the "Merchant Shipping Act, 1873," but state that the Merchant Shipping Act, 1854, and its subsequent amendments, together with this one, may be cited collectively as the Merchant Shipping Acts, 1854 to 1873. The 3rd section provides—

Firstly, that every British ship shall, before registry, have her name permanently and conspicuously marked on each of her bows, and her name, and that of the port of her registry, on her stern.

Secondly, that her official number, and the number denoting her registered tonnage, shall be cut on her main beam.

Thirdly, that a scale of feet denoting her draught of water shall be cut in and conspicuously painted in Roman capital letters, or in figures, not less than six inches in length, on each side of the stem and stern post, the lower line of such letters or figures denoting the draught line.

Fourthly, that the owner of any ship will be liable to a penalty of 100l.

if the scale of feet showing the ship's draught of water is, in any respect, inaccurate, so as to be likely to mislead, or if he neglect to have his ship marked as aforesaid, or suffer any person under his control to conceal, remove, alter, deface, or obliterate any of the said marks, except for the purpose of escaping capture by an enemy.

As regards the first requirement of this section, there could not be a more striking illustration of the importance of having the name of every vessel conspicuously painted on her than that afforded by the for ever infamous conduct of the captain of the Spanish ship *Murillo*, in deserting the drowning crew and passengers of the *Northfleet*, after running into and sinking that unfortunate vessel on the night of the 15th of January, 1873.

And so, also, as regards the second requirement, it is highly advantageous that a vessel should have, as it were, an official seal, certifying to her identity and her carrying capacity.

It is like the "Certificate of Baptism," or the "Registry of Birth," in the case of the human being, which can be referred to at any time to testify to identity.

The third requirement, which states that the draught of water of any vessel shall be visible at all times, through a scale of feet being cut and painted both on the stem and stern posts, we consider of great importance. For a long period it has been customary to mark a scale of feet on the stem and stern posts of ships of war; and many merchant vessels had the same, although not by compulsion, previously to the Amendment Act, 1871, to the manifest advantage of those on board them, that they might at all times be able to ascertain their exact draught of water, and trim.

The chief importance of this requirement, however, now is, that, taken with the comparative freeboard or height of the upper part of the hull, above the surface of the water, it is at once a visible indication as to whether or not a loaded ship is overladen; so that if she should appear to be so the authorities of the port from which she sails may have their attention directed to the circumstance, although they may not have received any official complaint of the same from her crew.

That there is every need for increased vigilance on the part of the Government authorities to prevent the crime of overloading is only too certain. Long before Mr. PLIMSOLL drew general attention to the subject the NATIONAL LIFE-BOAT INSTITUTION did so in its journal, and in the number for July, 1867, in an article on 'Overladen and Unseaworthy Ships,' will be found an account of the loss of the *Utopia*, a ship of nearly 1000 tons, which, in defiance of all the authorities of Liverpool, sailed from that port on the 10th of March of that year for Bombay, so overladen and leaky that only three days afterwards she had to be abandoned by her master and crew at the very moment of foundering, when they had a narrow escape of their lives. This was one of the most disgraceful cases on record, and the more so as the owners of the ship themselves superintended her departure, knowing at the time her unseaworthy condition, and that she was not, in

her then overladen and leaky state, fit to cross the Irish Channel, far less to start on a voyage to India. And let it not be thought that such cases will not occur continually if they be not prevented by the strong arm of the law, for so long as cupidity is inherent in many natures, and the temptation exists to increase the profit on a voyage by loading to the extreme limit of safety, and even beyond it, there will be many unprincipled men who will yield to its baleful influences, heedless of the risk to the lives of the poor men who work their ships. Just as there are men, calling themselves Englishmen and Christians, who are ready at any moment to sell arms and ammunition to the enemies of their country, in times of war, to be employed in destroying the lives of their own countrymen.

It is hoped that this scale of feet at stem and stern, coupled with the power of inquiry and examination by the officers under the Board of Trade, may be found sufficient to check the infamous and dastardly custom of habitual overloading; and tend to prevent any more *Utopias* from disgracing the British flag and name.

The 4th section provides that the record of the draught of water of any sea-going ship, required under section five of the Merchant Shipping Act, 1871, shall, in addition to the particulars thereby required, specify the extent of her "clear side" in feet and inches; and it defines the term "clear side" to mean the height from the water to the upper side of the plank of the deck from which the depth of hold, as stated in the register, is measured, the measurement being taken from the lowest part of the side.

The third clause of the section requires the master of every sea-going ship to permit any person appointed to record the ship's draught of water, to enter the ship, and make such inspections, and take such measurements, as may be requisite.

The 5th section prohibits the registry of any foreign ship becoming a British one, by any other name than that it had previously had, unless with the express sanction of the Board of Trade, as directed by section 6 of the Merchant Shipping Act, 1871, and affixes a penalty not exceeding 100*l.* for acting in contravention of the same.

The 6th section provides that when any British ship, by reason of having been wrecked or abandoned, or for any reason save capture by the enemy, or transfer to a person not qualified to own a British ship, shall have ceased to be registered as a British ship, she shall not be re-registered as one until she has been surveyed by one of the surveyors appointed by the Board of Trade, and certified by him to be sea-worthy.

This provision is undoubtedly a very necessary one.

The five following sections, from the 7th to the 11th, are connected with the agreements between masters and seamen, and the owners of vessels.

The only one of them calling for comment is the 9th, which provides that, "if a seaman or apprentice of any ship be detained on a charge of desertion, or any kindred offence, and if on a survey of the ship being made, under section 7 of the Merchant Shipping Act, 1871, it be proved that she is not in a fit condition to proceed to sea, or that her accommodation is insufficient, the owner or master of the ship shall be liable to pay

such seaman or apprentice such compensation for his detention as the Court having cognizance of the proceedings may award."

We think that such protection to the seamen who find themselves on board unseaworthy vessels has been long needed. On the one hand the custom of paying wages in advance, which induces bad men to desert their vessels and thus rob their employers, be discontinued; but on the other, no such disgraceful thing should any longer be possible, as that men should be sent to gaol and treated as criminals, because they refuse to go to sea in overladen, leaky, or other unseaworthy craft, at great peril to their lives. If it be deemed a convenient way to get rid of the scum of our population, and of the wild, turbulent, and restless spirits which dwell in all communities, to send them to sea to be drowned, well and good, only let the same be clearly understood. But if, on the other hand, it be thought desirable that service in our grand merchant navy shall be looked on as a respectable employment, and that those men, who visit all lands, whose example is for good or ill wheresoever they go, and who bring credit or discredit on the British name, should conduct themselves as respectable Christian men and not as savages; why, then, let every means be taken to make the service attractive and respectable—to improve those men already in it—and to lead them to respect themselves and to desire the respect of others.

The next series of sections, ranging from the 12th to the 28th, fall under the heading of "Safety and Prevention of Accidents."

Section 12 is a very important one. It provides—

"That when the Board of Trade has received a complaint, or has reason to believe that any British ship is, by reason of the defective condition of her hull, equipments, or machinery, or by reason of overloading, or improper loading, unfit to proceed to sea without serious danger to human life, it may, if it think fit, appoint some competent person or persons to survey such ship, and the equipments, machinery, and cargo thereof, and to report thereon to the Board."

That "Any person so appointed may, for the purposes of such survey, require the unloading or removal of any cargo, ballast, or tackle, and shall have all the powers of an inspector appointed under the Merchant Shipping Act, 1854."

Also that "Any person having notice of such survey who shall wilfully do any any act to obstruct or prevent the same, shall be liable to a penalty not exceeding 50*l*."

It empowers the Board of Trade to order the detention of any ship for the purpose of such survey, and authorizes any officer of Customs to detain her until her release be ordered either by the Board of Trade or by any Court to which an appeal is given under the Act. And it further empowers the Board to detain such ship either absolutely or on the performance of such conditions as it might think necessary to impose, in the event of the surveyor's report being such that, in the opinion of the Board, the ship could not proceed to sea without serious danger to human life.

As stated above, we consider this section of the Act a most important

one. If the Board of Trade are fortunate in obtaining the services of independent and experienced men, who will fearlessly and effectually discharge the difficult and onerous duty imposed on them, its effect we may hope will be to sweep our unseaworthy ships from the sea, and whilst it will strike terror into the hearts of evil-doers, that it will, at the same time, prevent the necessity of any general system of inspection or espionage, which would be inconvenient and vexatious to the general body of ship-owners, who would never, intentionally, send an unseaworthy vessel to sea.

The 13th section specifies by whom the expenses of such surveys shall be paid. If the ship surveyed should be found unfit to proceed to sea without serious danger to human life, that the expenses incurred by the Board of Trade in respect of the survey shall be paid by the owner of the ship, and be recoverable in the same manner as salvage is so. If not found unfit, that they shall be paid by the Board of Trade.

It also empowers the Board, on a complaint being made to it that a ship is unfit to proceed to sea, to require the complainant to give such security as they might deem sufficient for the payment of any costs and expenses for which the Board might become liable, and makes the same recoverable by the Board should it appear that the complaint had been made without sufficient reason. This clause will effectually prevent frivolous or malicious complaints being made as to unseaworthiness, &c.

The 14th section specifies the Courts to which a shipowner may appeal if dissatisfied with any order made by the Board after a survey, viz:—

“In England, to any Court having Admiralty Jurisdiction.

“In Ireland, to any Court having Jurisdiction under the Court of Admiralty (Ireland) Act, 1867.

“In Scotland, to the Court of the Sheriff of the County.”

The 15th section authorises the Board of Trade to sanction, at the request of the owner, a reduction in the number, and a variation in the dimensions, of the boats required for the ship by section 292 of the ‘Merchant Shipping Act, 1854,’ and also the substitution of rafts or other appliances for saving life for any such boats; so, nevertheless, that the boats so reduced or varied, and the rafts, &c., so substituted should be sufficient for the persons carried on board the ship.

Section 16 is of great importance. It is as follows:—“In every case of collision between two vessels it shall be the duty of the master or person in charge of each vessel, if and so far as he can do so without danger to his own vessel, crew, and passengers (if any), to stay by the other vessel until he has ascertained that she has no need of further assistance, and to render to the other vessel, her master, crew, and passengers (if any), such assistance as may be practicable, and as may be necessary, in order to save them from any danger caused by the collision; and also to give to the master or person in charge of the other vessel the name of his own vessel, and of her port of registry, or of the port or place to which she belongs, and also the names of the ports and places from which she has come and to which she is bound.

“If he fail so to do, and no reasonable cause for such failure be shown,

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the collision shall, in the absence of proof to the contrary, be deemed to have been caused by his wrongful act, neglect, or default.

"Every master or person in charge of a British vessel who fails, without reasonable cause, to render such assistance, or give such information as aforesaid, shall be deemed guilty of a misdemeanour, and, if he is a certificated officer, an inquiry into his conduct may be held, and his certificate may be cancelled or suspended."

It was time that such an enactment as that contained in this section should be made; for although the case of the running down of the emigrant ship *Northfleet*, already referred to, was no doubt the immediate cause of its introduction into this "Amendment Act," if it was not indirectly the cause of the Act itself, yet too many cases of heartless desertion, although with less disastrous consequences, have from time to time occurred, and it can only be matter of surprise that the desertion of one ship by another, under such circumstances, has not long since been made a punishable offence.

Sections 18 to 21, together with two schedules to the Act, define the character of the signals to be shown by vessels in distress and needing assistance, and by those requiring pilots, and prohibit the use of such signals for any other object, and make those who misuse them liable for any expenses occasioned thereby. They are as follows :—

"18. The signals specified in the First Schedule to this Act shall be deemed to be signals of distress.

"Any master of a vessel who uses or displays, or causes or permits any person under his authority to use or display, any of the said signals, except in the case of a vessel being in distress, shall be liable to pay compensation for any labour undertaken, risk incurred, or loss sustained in consequence of such signal having been supposed to be a signal of distress, and such compensation may, without prejudice to any other remedy, be recovered in the same manner in which salvage is recoverable.

"19. If the vessel requires the services of a pilot, the signals to be used and displayed shall be those specified in the Second Schedule to this Act.

"Any Master of a vessel who uses or displays or causes or permits any person under his authority to use or display, any of the said signals, for any other purpose than that of summoning a pilot, or uses, or causes, or permits any person under his authority to use any other signal for a pilot, shall incur a penalty not exceeding 20*l*.

"20. Her Majesty may, from time to time, by Order in Council, repeal or alter the rules as to signals contained in the schedules to this Act, or make new rules in addition thereto, or in substitution therefore, and any alterations in, or additions to, such rules made in manner aforesaid, shall be of the same force as the rules in the said schedules.

"21. Any shipowner who is desirous of using for the purposes of a private code, any rockets, lights, or other similar signals, may register such signals with the Board of Trade, and the Board shall give public notice of the signals so registered in such manner as they may think requisite for preventing such signals from being mistaken for signals of distress or signals for pilots.

"The Board may refuse to register any signals which, in their opinion, cannot easily be distinguished from signals of distress or signals for pilots.

"When any signal has been so registered, the use or display thereof by any person acting under the authority of the shipowner in whose name it is registered shall not subject any person to any of the penalties or liabilities by this Act imposed upon persons using or displaying signals improperly.

"22. If the managing owner, or, in the event of there being no managing owner, the ship's husband of any British ship have reason, owing to the non-appearance of such ship, or to any other circumstance, to apprehend that such ship has been wholly lost, he shall, as soon as conveniently may be, send to the Board of Trade notice in writing of such loss, and of the probable occasion thereof, stating the name of the ship and her official number (if any), and the port to which she belongs; and if he neglect to do so within a reasonable time, he shall incur a penalty not exceeding 50*l*."

In the number of the 'Lifeboat Journal' for August, 1873 (No. 89), we published the system of signals of distress and for pilots contained in the two schedules of this Act, together with our own comments on them; we need not, therefore, now repeat them.

Sections 23 to 28 forbid any person, not the master or owner, sending or carrying by any vessel, British or Foreign, any dangerous goods, such as aquafortis, vitriol, naphtha, benzine, gunpowder, lucifer matches, nitroglycerine, and petroleum, without distinctly marking their nature on the outside of the package containing the same and giving written notice of the nature of such goods, and of the name and address of the sender or carrier thereof, to the master or owner of the vessel, at or before the time of sending the same to be shipped. They also attach certain penalties, which may amount to 100*l*., for wilful infringement of this law, and to 500*l*. if accompanied by false descriptions of the goods or of the sender or carrier thereof. And in certain cases authorize the forfeiture of the goods in question.

The remaining sections of the Act are of a miscellaneous character.

As above remarked, we had considered there were shortcomings and inconsistencies in the Merchant Shipping Act of 1854. So, doubtless, there are in this Amended Act of 1873. And so there will be in future Shipping Acts; for what is there that is perfect and yet human? We are, however, despite all our reforms and reformers, a conservative people, and have for a long period preferred cautious rather than precipitate legislation, and have been content patiently to endure many imperfections and admitted evils until they could be safely dealt with, rather than waste time and energy in useless and hasty efforts to attain an impossible perfection. Hence our advances in this, as in other and even more important objects of legislation, have been attained slowly and deliberately, step by step, yet with unflinching certainty, moved by the opposing influences of the progressive and conservative elements in our constitutional and representative political system.

**PATRON, VICE-PATRON, PRESIDENT, VICE-PRESIDENTS, AND
OTHER OFFICERS OF THE INSTITUTION.**

IN 1837, on the accession of HER MAJESTY THE QUEEN to the Throne, she consented, at the invitation of the Committee, to become the Patron of the Institution.

In 1863, H.R.H. the PRINCE OF WALES became its Vice-Patron.

His Grace the DUKE OF NORTHUMBERLAND, P.C., was elected in 1865 its President, in succession to the late ALGERNON, Fourth DUKE OF NORTHUMBERLAND.

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SERVICES OF THE LIFE-BOATS OF THE INSTITUTION IN 1873.

	Lives.		Lives.
<i>Alexander</i> , Danish brig—saved vessel and	8	<i>George IV.</i> , schooner, of Amlwch—saved boat and	2
<i>Amazon</i> , barque, of Gothenburg	18	<i>Gold Finder</i> , schooner, of Belfast—rendered assistance.	
<i>Anna Gezina</i> , Dutch galliott	3	<i>Hawk</i> , schooner, of Chepstow—saved vessel and	4
<i>Annie Brooks</i> , schooner, of Bideford	5	<i>Hendon</i> , brig, of Sunderland—assisted to save vessel and	9
<i>Belle Isle</i> , brig, of Shoreham	8	<i>James</i> , schooner, of Arbroath	4
<i>Catherine</i> , schooner, of Amlwch	3	<i>James</i> , schooner, of Carnarvon	4
<i>Celine</i> , schooner, of Gravelines	7	<i>Levant</i> , schooner, of Brixham—assisted to save vessel and	7
<i>Dalkeith</i> , schooner, of Stornoway	4	<i>Leven</i> , sloop, of Runcorn	2
<i>David</i> , Prussian schooner—saved vessel and	6	<i>Little Queen</i> , fishing hooker, of Dungarvan	6
<i>Die Schwalbe</i> , barque, of Rostock—saved vessel and	10	<i>Lizzie</i> , screw steamer, of London	12
<i>Dollart</i> , schooner, of Detzum	7	<i>Lord Howick</i> , schooner, of Maldon—saved vessel and	6
<i>Druid</i> , screw steamer, of Sunderland	4	<i>Lord Reidhaven</i> , schooner, of Banff	3
<i>Dunmail</i> , ship	10	<i>Louisa</i> , Danish barque—assisted to save vessel and	10
<i>Edwin Bassett</i> , barque, of Sunderland	2	<i>Marie Nathalin</i> , Russian schooner	9
<i>Emmanuel</i> , lugger, of Nantes	6	<i>Marie Boustead</i> , schooner, of Nantes—saved vessel and	7
<i>Ercole</i> , brig, of Naples—saved vessel and	11	<i>Marie Emilie</i> , schooner, of St. Louis	4
<i>Express</i> , schooner, of Barnstaple	3	<i>Mary</i> , schooner, of Laxey	3
<i>Filatore</i> , barque, of Genoa	10	<i>Mary Ann</i> , schooner, of Bideford	4
<i>Flossie</i> , brig, of Guernsey—assisted to save vessel and	8	<i>Mary Anne</i> , schooner, of Plymouth	5
<i>Fomalhaut</i> , barque, of Greifswald—assisted to save vessel and	11	<i>Mary Ann Holman</i> , barque, of Exeter, remained by vessel.	
<i>Fortuna</i> , barque, of Gothenburg—assisted to save vessel and	16	<i>Milton Lockhart</i> , barque, of North Shields	15
<i>Francis</i> , brig, of Porthcawl	6	<i>Nicomi</i> , yacht, of Dalkey	4
<i>Françoise Marie</i> , brig, of Caen—saved vessel and	7	<i>Noordster</i> , Norwegian barque.	12
<i>Gem</i> , schooner, of Wexford	6	<i>No. 4</i> , schooner, of Arundel	3
<i>Georg and Louise</i> , brig, of Rostock—remained by vessel.			

SERVICES OF THE LIFE-BOATS OF THE INSTITUTION
IN 1873—continued.

	Lives.		Lives.
<i>Otto</i> , brig, of Moss, Norway	8	<i>Spec</i> , brigantine, of Plymouth	7
<i>Peggy</i> , sloop, of Cardigan	2	<i>Thomas and Sons</i> , schooner, of Carnarvon — remained by vessel.	
Pilot coble, of Scarborough— saved coble and	6	<i>Torrance</i> , brig, of Irvine	6
<i>Princess of Wales</i> , barque, of Glasgow	16	<i>Triton</i> , Prussian barque	1
<i>Prosperity</i> , sloop, of Portmadoc	3	<i>Unicorn</i> , brigantine, of Irvine	7
<i>Quail</i> , steamer, of Cork	7	<i>Wilson</i> , schooner, of White- haven	5
<i>Rambler</i> , schooner, of Plymouth	2	<i>Woodham</i> , steamer of Christi- ania	20
<i>Rambler</i> , schooner of Wexford	3	<i>Ystroom</i> , barque, of Amsterdam —assisted to save vessel and	14
<i>Remembrance</i> , brig, of Middles- borough	8		
<i>Richard and Emily</i> , schooner, of Highbridge—assisted to save vessel and	4	Total lives saved by Life-boats, in 1873, in addition to 21 vessels	471
<i>Sarah</i> , schooner, of Strangford	4	During the same period the In- stitution granted rewards for saving Lives by fishing and other boats	197
<i>Sarpsborg</i> , barque, of Christi- ania—assisted to save vessel and	14		
<i>Scott</i> , barque, of Sunderland	10	Total of Lives saved in Twelve Months	668
<i>Seventeenth of May</i> , schooner, of Christiania	6		
Skiff, of Wicklow—saved boat and	2		
<i>Snowdrop</i> , fishing smack, of Aberystwith — saved vessel and	2		



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